JPRS 77834

15 April 1981

USSR Report

ENERGY

No. 54

FBIS FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semimonthly by the NTIS, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available through Bell & Howell, Old Mansfield Road, Wooster, Ohio, 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

Soviet books and journal articles displaying a copyright notice are reproduced and sold by NTIS with permission of the copyright agency of the Soviet Union. Permission for further reproduction must be obtained from copyright owner.

JPRS 77834

15 April 1981

USSR REPORT

ENERGY

No. 54

CONTENTS

ELECTRIC POWER

Operation of Rovenskaya AES Examined
(D. Dobarin; RADYANS'KA UKRAYINA, 17 Feb 81) 1

ENERGY CONSERVATION

Conserving the Fuel-Power Resources of the National Economy
(A. Lalayants; PLANOVOYE KHOZYAYSTVO, Jan 81) 4

FUELS

Ukrainian Coal Minister Discusses Future of Donetsk Basin
(Nikolay Konstantinovich Grin'ko Interview; RABOCHAYA GAZETA, 1 Feb 81) 16

Ukrainian Coal Minister Outlines Progress on Coal Workers' Requests
(N. Grin'ko; SOTSIALISTICHESKAYA INDUSTRIYA, 8 Feb 81) ... 19

Ukrainian Coal Ministry Promises New Equipment
(V. A. Voronin; RABOCHAYA GAZETA, 3 Feb 81) 21

ESSR Academy of Sciences Meeting Discusses Fuel and Energy Future
(G. Golub; MOLODAYA ESTONIYA, 20 Jan 81) 22

Lessons To Be Learned From History, Current Problems of Tatneft' Association
(R. T. Bulgakov, A. K. Mukhametzyanov; EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROISVODSTVA, No 1, 1981) ... 24

Power Engineering Developments in Estonia
(SOVETSKAYA ESTONIYA, 4 Feb 81) 30

Estonia's Future Power Base, by A. Favorskaya
Energy Consultation Provided

Condition of Azerbaijan Offshore and Land Oil Drilling Discussed
(M. Bayramov, et al.; PRAVDA, 10 Feb 81) 35

Future Plans for Azerbaijan Oil, Gas Field Equipment Industry Outlined
(Yu. Manzon; BAKINSKIY RABOCHIY, 6 Feb 81) 37

Kamsk Coal Basin Development as Solution to Coal Transportation Problems
(M. Pogrebnyak; SOTSIALISTICHESKAYA INDUSTRIYA, 18 Feb 81) 40

Pitfalls, Progress in Turkmen Petrochemical Industry
(G. Izhnin, O. Pal'vanov; TURKMENSKAYA ISKRA, 11 Mar 81) .. 42

Turkmen Oil Exploration Continues
(B. Nepesov; TURKMENSKAYA ISKRA, 4 Feb 81) 45

Tyumen' Geologists Search for Oil, Gas
(F. Salmanov; PRAVDA, 13 Feb 81) 46

Fuel, Energy Construction Plans in Yerevan Outlined
(M. Allakhverdyan; KOMMUNIST, 6 Mar 81) 49

Urengoy-Moscow Pipeline Nears Completion
(SOTSIALISTICHESKAYA INDUSTRIYA, 17 Feb 81) 50

Greater Stress on Coal as Oil Substitute Advocated
(M. Golitsyn; IZVESTIYA, 4 Feb 81) 52

Duplication, Waste in Geological Exploration Deplored
(A. Karryyev; TRUD, 14 Jan 81) 53

High Marks Given to New Coal Excavation Combine
(A. Yaroshenko; RABOCHAYA GAZETA, 14 Jan 81) 54

More Mining Equipment Needed
(V. Borodin, N. Dobronosov; PRAVDA, 14 Feb 81) 55

Role of Repair Base in Oil and Gas Industry Stressed
(A. Rzayev; VYSHKA, 13 Feb 81) 57

Necessary Instruments Lacking for Oil Bed Modification Work
(I. Dzhamalov; BAKINSKIY RABOCHIY, 18 Jan 81) 60

Briefs
Drilling Rig 62

ELECTRIC POWER

OPERATION OF ROVENSKAYA AES EXAMINED

Kiev RADYANS'KA UKRAYINA in Ukrainian 17 Feb 81 p 2

[Article by D. Dobarin, deputy chief engineer, Rovenskaya AES: "To Anticipate and Act"]

[Text] According to the Basic Directions Plan seven atomic stations will be operating in the Ukraine at the end of the 11th Five-Year Plan. Seven atomic energy stations amounts to a striking, powerful energy achievement.

The country's industrial current today is provided by two stations -- the Chernobilskaya with two million blocks and the Rovenskaya station which opened an account for the first kilowatt hours at the conclusion of the Tenth Five-Year Plan.

A very important task was set before our branch in the next five years. "To develop atomic energetics rapidly...Put into operation 24-25 million kilowatts new power at atomic power plants" reads the CC CPSU Plan. Later, in the section devoted to the social-economic development of union republics, especially the Ukr SSR, it was stated: to obtain a fundamental increase in electrical energy from atomic power plants. The document lists all seven stations: in addition to the two mentioned above also the Southern-Ukrainian now being constructed, the Krymskaya, Khmelnitskaya, Zaporozhskaya and Odesskaya heat and electric power stations.

In determining the most effective ways of solving this task now the republic's energetics specialists and atomic builders, of course, refer to the past ten-year phase: exactly ten years ago a new period began in the quality of energetics development in the Ukraine. A normal process of reviewing the experience of constructing technically complex facilities in nuclear energy, putting them in order and into operation is taking place.

As a specialist in nuclear energy I should, naturally, speak of the third component of this experience -- about AES operation. Of course, full capacity Rovenskaya station operation has only just begun. But even today, when the crucial and complex set of starting work on the first block is behind us, when we have begun utilizing the power of this unique structure, since the reactor and part of the AES equipment is the first of its kind in the Ukraine and in the USSR, some lessons may already be learned, and most importantly, we can also look into the future.

My thoughts and suggestions are based largely on collective thoughts, derived from an exchange between station specialists working here today, in Kuznetsovsk, and earlier in other stations in the country. Speaking of myself, prior to arrival at the Rovenskaya AES, I contributed to the construction, starting work and operation of two blocks of the Kolskaya AS. Therefore, I can refer also to previous experience.

Atomic energy power in the Ukraine has been created and is growing. It may be said that it is based on "three whales" -- promise, safety, efficiency. These foundations are part of the plans (e.g., triple protection system) and are unconditionally put into effect during station construction. However, personnel is needed to guarantee promising, safe and efficient functioning of the whole complex during operation. But sufficient personnel is not available. Unfortunately, we have not yet created a specialized present-day foundation for training AES specialists, especially operative personnel on whom great demands are placed. It is no secret that operative personnel, especially operators of block shields are trained by the AES administration according to the usual methods approved by the USSR Ministry of Power and Electrification for organic fuel stations: theoretic preparation, instruction at work, a check up on knowledge and duplication behind the back, that is in assistants. Yet, this is really far too little to obtain or make (perhaps these words sound strictly industrial) a qualified specialist. Preparation of AES personnel should be placed on an industrial-scientific basis. The time for this has arrived because with the introduction of ever new capabilities the AES personnel issue is becoming especially urgent. Also the training of an atomic specialist of high caliber requires no less than four to five years. Equipment and technology complexity, of course, is greater than in organic fuel and hydraulic electric power stations and the extent of continuously worked equipment information by an individual is huge. In addition, not everyone who wishes to work at the AES can become a good specialist (because of different individual potential) or a flier for that matter, or cosmonaut. Practice shows a considerable "sifting" of operators after probation.

What specifically is being suggested, what possible variants?

First of all, to provide for personnel reserves in the staffing lists of already active stations and to train them through practice, at work in starting facilities, assembly, starting preparation, and operation. Only then should they be sent to the newly constructed AES. Thought should be given also to the establishment in the Ukraine of a special training program for AES personnel, that is, a complex imitating an atomic power station with real full block control panel. It should become one of the important elements in the personnel training system. Of course, a training program is expensive but it is essential for the seven future atomic stations and will pay for itself a hundredfold. The AES will be able to receive approved, well prepared personnel who will be able to guarantee safe, promising work of complex, expensive instruments and equipment. Let me recall fliers and cosmonauts again: they are not allowed into the sky without prolonged, painstaking "polishing" at training stations. The extent of work, the intellectual and psychological load and responsibility to people, for a reactor operator, for example, is no less.

Model work would facilitate the preparation, assembly and training of personnel (builders as well as operators) considerably. How much simpler, visual and convincing would it be to show the goal and to see it on an AES model on a scale of one to fifty or a hundred, for example. Models of constructed facilities are not a whim but a contemporary construction requirement. Utilization of a common model prevents numerous errors and revisions especially in the most complex forms of pipe construction, cable communications, equipment and apparatus with which atomic stations are filled. Funds for creating a model should be provided in the cost estimate and they will, of course, pay for themselves even by avoiding additional changes and corrections.

Now about the current level of AES reactor operation, about modernizing, reconstruction, repairs. Is it not too soon, we might ask. The station has just begun to operate...No, it's not too early. Nuclear energetics is the youngest and yet the most advancing industry branch. As of now, atomic stations have no industrial measures for prophylactics, equipment inspection, that is, no special arrangements exist for outfitting an individual working in a zone of strong radiation, for example. Each AES should have "its own" (because it cannot be transported) capsule-container for core revision, and full choice of other measures. We know that a factory was planned for the production of such equipment, but its realization is for some reason being postponed.

In our opinion, the problems referred to above are very important for the republic's development of atomic energy. Therefore, we feel that in the CC CPSU Plan "Basic Directions for USSR Economic and Social Development for 1981-1985 and for the Period up to 1990," in the section dealing with electric energy, after the words "Put into operation 24-25 million kilowatt new power in atomic stations" the following should be stated: "Develop and introduce equipment and outfitting for AES operation and repair; realize systematic, present-day level specialized personnel preparation through training programs."

9443
CSO: 1811/37

ENERGY CONSERVATION

CONSERVING THE FUEL-POWER RESOURCES OF THE NATIONAL ECONOMY

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 1, Jan 81 pp 34-44

[Article by A. Lalayants, deputy chairman of USSR Gosplan]

[Text] Increasing the effectiveness of social production depends to a significant degree at the modern stage on practical implementation of measures for an energy-conserving policy in all sections of the national economy.

The national economic significance of this problem is exceptionally important. Our country has achieved a level of extraction and production of primary fuel and energy resources equivalent to 2 billion tons of comparison fuel. A 1 percent saving of produced energy resources now comprises approximately 20 million tons of comparison fuel, which is equivalent to approximately 1.9 billion rubles at current worldwide prices.

Under the existing conditions, energy has become the most highly effective export product. An energy-conserving policy will make it possible to reduce expenditures of labor and material resources on laborious and capital-consuming sectors of the fuel and energy complex (up to 40 percent of capital investments expended in industry goes to them) and to provide a significant reduction of material consumption (energy consumption) of the finished products because of this. It is especially important to take this into account with regard to the fact that our fuel production is being developed mainly in uninhabited regions of the north and east with severe natural and climatic conditions, while consumption of 76 percent of this fuel is concentrated in the European USSR and in the Urals. These objective conditions cause ever-increasing expenditures on fuel (energy) extraction and transport, which annually reach many billions of rubles. At the same time calculations show that expenditures on fuel economy measures are one-half to one-third below expenditures on production and transport of fuel to the places of consumption. Moreover, the most radical measures to control environmental pollution from the use of energy resources is conservation of them.

The following data indicate the enormous, far from utilized capabilities of conservation.

According to data of scientific research organizations, the beneficial use of energy resources in our country in 1980 comprised 43 percent (approximately at the same level as in the rest of the world). Thus, our fuel losses during utilization are also high--57 percent. If they are converted to absolute figures, this will be approximately 900 million tons of comparison fuel.

Of course, these losses do not necessarily mean waste and mismanagement in their use, although they still unfortunately occur. The main causes of the low coefficient of beneficial use of fuel and energy resources are the insufficiently high level of technological processes of conversion, transport and use of fuel and energy, the comparatively low technical level and the structure of the fuel-using equipment. Deficiencies in training and recruitment of power engineers and in organization of accounting and monitoring of the use of energy in the national economy have a no less important effect on the level of utilization of energy resources.

A far-sighted policy of developing major power engineering, which has reached worldwide significance, supported the flowering and economic independence of our government from the capitalist countries. Everyone now recognizes that the Soviet Union is unique among the highly developed countries, which is completely sufficient in energy resources and, moreover, has the capability of delivering large quantities for export and primarily to socialist countries.

Our energy might is related not only to the capability of increasing the extraction and production of energy resources. Strict conservation and more efficient use of resources in the national economy are also of important significance. This will permit a significant increase in the rates of increase of production, the energy and mechanical equipping of labor with the same fuel resources and will also increase the comfort of the daily conditions of our people. "Regardless of how much the resources of our society increase," said L. I. Brezhnev at the 25th CPSU Congress, "the strictest conservation and thriftiness remain the most important condition for development of the national economy and for increasing the people's standard of living."* Emphasizing this same idea at the November (1979) Plenary Session of the CPSU Central Committee, he noted: "Regardless of the rates at which we have developed power engineering, conservation of heat and energy will be the most important general state problem in the future."**

Giving important significance to this problem, the CPSU Central Committee and the USSR Council of Ministers adopted a special decree (December 1973), which was the main document in the struggle for conservation of energy resources in the national economy during the 10th Five-Year Plan.

Conservation of energy resources in the national economy during the five-year plan will comprise approximately 126 million tons of comparison fuel or 8 percent of their consumption, including substitution of fossil fuel with an increase of generated electric power at GES and AES. The establishment of the tasks on fuel and energy conservation during the current five-year plan was preceded by extensive work conducted by USSR Gosplan jointly with the ministries, agencies and union republics on development and introduction of new production processes and more economical equipment into production. Attention was devoted to increasing the use of secondary fuel and thermal resources, to the importance of implementing measures on energy conservation in the public-service sector by increasing the heat insulation of buildings, introduction of automatic heat supply control devices and so on. Special measures were developed to conserve light petroleum products during transport, in agriculture, construction and other sectors. The replacement of existing uneconomical equipment and devices, including energy units and individual assemblies of energy equipment in electric power engineering, thermal furnaces in machine building and burners during gas combustion in all sectors, was also envisioned.

---

* "Materialy XXV c"yezda KPSS" [Proceedings of the 25th CPSU Congress], Moscow, Politizdat, 1978.

** L. I. Brezhnev, speech at the Plenary Session of the CPSU Central Committee, 27 Nov 1979, Moscow, Politizdat, 1979.

However, a number of ministries and agencies did not devote sufficient attention to this important problem during the past period and did not completely fulfill the established tasks on conservation. Thus, in 1979 the specific fuel consumption for generation of electric power throughout Minenergo [Ministry of Power and Electrification] of the USSR comprised 330.5 gcf/kW·hr instead of a planned 329, which led to overconsumption of 1.3 million tons of comparison fuel. The Ministry of Ferrous Metallurgy of the USSR overconsumed 2.1 million tons of boiler and furnace fuel as a result of increasing the specific fuel consumption for production of pig iron, agglomerate and other types of products. A similar situation was also noted in some other ministries.

Analysis of available materials and data of a check in some places show that the direct causes of overconsumption of energy resources are frequently violations of production conditions, the use of obsolescent equipment, unadjusted use of waste gas heat, insufficient degree of automation of thermal processes, poor heat insulation and airtightness of equipment and pipelines and untimely performance of adjusting operations. A number of measures to develop and introduce new energy-conserving equipment into the national economy is also not being fulfilled. Thus, Minavtoprom [Ministry of the Automotive Industry], Minstankoprom [Ministry of the Machine Tool Industry], Mintyazhmash [Ministry of Heavy Machine Building] and the Ministry of Railways are converting with long delays railroad freight cars now being produced and in operation to roller bearings, which leads to annual overconsumption of 500,000 tons of diesel fuel, 1.5 billion kW·hr of electric power and 300,000 tons of axle grease.

The Ministry of Power Machine Building has not completely fulfilled the tasks on production of utility boilers, auxiliary boiler equipment and spare parts for boiler plants. The Ministry of the Electrotechnical Industry jointly with the Ministry of Installation and Special Construction Work of the USSR, the Ministry of the Gas Industry and the Ministry of Instrument Making, Automation Equipment and Control Systems has not provided serial production of standardized flame heating and thermal furnaces on liquid and gaseous fuels. Minpribor [Ministry of Instrument Making, Automation Equipment and Control Systems] has not fully provided for production of instruments for operational record keeping and monitoring of boiler plants, heating networks, fuel consumption and thermal energy consumption and also instruments for automatic control of heat consumption in water heating systems and hot water supply in residential and public buildings.

The Ministry of the Gas Industry is slowly organizing work to produce economical gas and gas-mazut burners with automatic control. The Ministry of Ferrous Metallurgy of the USSR has not fulfilled the most important task on conservation of energy resources in construction of an experimental industrial plant on production, heating and supply of highly heated recovery gas to the blast furnace to achieve a sharp reduction (more than 20 percent) of coke in blast furnace production.

The specific consumption of fuel and energy to produce individual types of products is still significantly higher at many enterprises than the level achieved at leading enterprises both in our country and especially abroad due to improvement in part of the fuel and energy-using equipment and production processes, the absence of the required devices and means of monitoring and regulation of fuel and energy use, deficiencies in standardization and keeping records of consumption of fuel and energy resources and for a number of other reasons.

Incomplete fulfillment of measures on fuel conservation during the 10th Five-Year Plan delayed to a known degree normal development of the national economy.

The problem of increasing the effectiveness of using energy resources will become even more acute during the next decade. This is caused by the fact that development of the fuel and energy sectors and means of transport of energy resources is becoming ever more expensive and it will become more difficult to achieve the postulated goals of production levels. Capital investments are increasing approximately 1.5 times more quickly than production levels. The cost of extracted fuel is also increasing. These trends will be intensified even more in the future. The period of inexpensive mineral energy resources has come to an end. Fossil fuels are being intensively exhausted at the enormous levels of fuel production achieved and coal, oil and gas reserves are nonrenewable and the need for them will increase for many years.

Taking all this into account, USSR Gosplan, GKNT [State Committee for Science and Technology] and the USSR Academy of Sciences, working out jointly with the ministries, agencies and union republics new measures on fuel conservation for the future, proceeded on the basis that capital investments and material resources should be directed primarily toward goals of energy conservation in all sectors and union republics. Moreover, it is impossible to be limited by known traditional measures of conservation of usually "evident" existing production and those usually implemented jointly as a function of directly interested enterprises themselves. All work on energy conservation should be carried out on the basis of general state interests and according to specially developed purposeful programs which should include the following primary measures:

improvement and restoration of obsolescent and excessively energy-consuming production processes with replacement for modernization of obsolescent and uneconomical existing equipment;

a sharp increase in the volumes of use of fuel and especially of thermal secondary energy resources;

reducing the losses of energy resources in production, transport, refining and storage;

universal introduction of means of automation and control which provide regulation of the consumption of electric and thermal energy directly in production processes and also maintenance of the required temperature in buildings and structures according to given operating conditions and established norms;

review where required of established rules, norms and standards for production of products and operations, construction and especially for energy-consuming equipment which provide a reduction of specific energy consumption. In this case the newly established norms should usually be no higher than those achieved at the leading domestic enterprises and abroad;

universal introduction of scientifically based standardization of energy consumption and accounting for it and also intensification of the material incentives to workers related to direct use of energy resources for conservation.

Based on these principal propositions based on developments of scientific research and planning organizations, measures on energy conservation for the next decade are being determined for all main trends of consumption throughout the ministries, agencies and union republics. Measures from the most energy-consuming sectors of industry and also on transport and the public-service sector were subjected to especially extensive development.

Significant conservation of fossil fuels should be achieved in electric power engineering primarily by introduction of energy units with rating of 500, 800 and 1,200 MW and the corresponding change in the structure of generating capacities of electric power plants, modernization of condensation energy units of 150, 200, 300 and 800 MW, reconstruction of condensation units of 150-300 MW with conversion of them to operate on the heating plant cycle with a corresponding increase of central heat supply.

All this permits a reduction in the specific fuel consumption for production of electric power from an average of 328 g/kW·hr in 1980 to 310-312 g/kW·hr. The given indicators will correspond to the best worldwide achievements in specific fuel consumption per kW·hr of electric power produced. Electric power losses in electric systems should be considerably reduced by no less than 10-12 percent by overcoming lags in construction--of the most important electric power transmission lines--and by increasing the degree of reactivity compensation. Significant measures are planned on fuel conservation for heat production and also to reduce heat losses during transport and use. Implementation of the indicated measures provides the basis to assume that electric power engineering will provide conservation of energy resources in the amount of 25-28 million tons of comparison fuel during the next decade.

Ferrous metallurgy workers are faced with important problems on conservation of energy resources. This sector is the most energy-consuming one. It consumes approximately 25 percent of fuel and energy resources consumed by all the country's industry. The main part goes to produce pig iron and a lesser part to steel and rolled steel production. Despite the fact that our metallurgical industry occupies one of the leading positions in the world in its technical level and equipment, consumption of energy resources in it per the final product remain high. An average of 640 kg of comparison fuel is consumed to produce one ton of pig iron, which is considerably more than in a number of foreign countries and at the leading domestic enterprises. Therefore, a number of measures to reduce specific consumption of energy resources for pig iron production was planned during the 10th Five-Year Plan, mainly as a result of increasing the iron content in the blast furnace charge, improvement of the granulometric composition, expansion of the use of natural gas, increasing the blast temperature and gas pressure in the furnace throats and also equipping blast furnaces with automated control systems for thermal processes and batch proportioning systems. The specific consumption of energy resources per ton of pig iron can be reduced to 605 kg primarily by fulfilling the indicated measures in the future and accordingly 10 million tons of comparison fuel can be conserved. This is far from our maximum capabilities and there is every basis to anticipate that the planned volumes of energy conservation can be increased more significantly as a result of more active implementation of measures on preparation of iron-ore for the blast furnace charge and improvement of the thermal processes in blast furnace production.

The metallurgical industry has at its disposal a significant reserve for conserving energy resources in steel and rolled steel production. Conservation of up to four million tons of comparison fuel can be provided, for example, by improving the structure of steel-smelting production, including increasing the volumes of production with continuous teeming of steel and improving rolled steel production. Conservation can also be achieved in this sector by more complete utilization of secondary energy resources, especially of thermal resources. Among the potential resources of secondary heat--120 million Gcal possible for utilization in ferrous metallurgy, 39 million Gcal alone or 30 percent will be realized in 1980. An increase of this percentage in the future to 48-50 will increase the saving by almost 16-20 million Gcal, of which a considerable amount can be achieved even during the 11th Five-Year Plan. This is a quite realistic task and the metallurgists should actively pursue solution of it.

Conservation of energy resources in nonferrous metallurgy should be provided mainly by improving production processes in copper, lead, zinc, nickel and other metal production. There are great opportunities for electric energy conservation in aluminum production, mainly by reconstruction of electolyzers, increasing the quality of the anode mass and conversion to powerful electrolyzers with annealed anodes in aluminum production.

Significant conservation of energy resources can also be achieved in this sector by better utilization of secondary thermal energy resources. In 1980 consumption of these resources will comprise a total of 31 percent, which yields a saving of approximately 5 million Gcal. If future use of these resources is brought up to 50 percent, which is quite realistic, the saving will accordingly increase by an additional 9.7 million Gcal. The total saving throughout the sector (with regard to increasing norms for some processes) should comprise apprxoimately 7 million tons of comparison fuel, of which almost half will be due to electric energy conservation.

Conservation is achieved in the chemical and petrochemical industry mainly as a result of introducing new production processes in ammonia, methanol, carbamide, plastics and rubber production and also of some other types of production, mainly multicapacity plants. The total saving due to these measures may reach 20 million tons of comparison fuel throughout Minkhimprom [Ministry of the Chemical Industry].

Significant reserves will also be raised in these sectors due to extensive recruitment of secondary fuel and thermal resources. Secondary resources are being utilized by 89 percent and secondary thermal resources are being utilized by 60 percent by petrochemistry in 1980 and the figures are 45 and 72 percent, respectively, in chemistry. But there are still great opportunities here for increasing the percentage of utilization of secondary energy resources which may yield an additional saving of 9.5 million tons of comparison fuel.

Cement production by the dry method, reducing the average moisture content of the slurry and using more improved heat-exchange and burner devices for clinker roasting in the construction materials industry will permit conservation of more than three million tons of comparison fuel, while the total conservation of energy resources throughout this sector of industry will comprise 8.5 million tons of comparison fuel during the decade upon implementation of a number of improved processes for production of other construction materials (glass, ceramics, brick and reinforced concrete).

Replacement of obsolescent and physically worn-out boiler and furnace equipment, heating, thermal and drying furnaces and also other production and heat-producing equipment with new more efficient and economical equipment and outfitting the equipment with recuperators and automatic devices which provide more complete combustion of fuel and conservation of all types of energy resources should be accomplished in machine building.

An important element of measures for energy conservation in machine building is reduction of the heat losses of equipment, pipelines and especially of buildings, on which approximately 50-60 percent of boiler-furnace heat used in the sector is expended.

Of the total volume of the planned fuel conservation, 55 percent is provided by fulfillment of measures on electric power conservation, 30 percent by conservation of thermal energy and secondary thermal resources and 15 percent by conservation of boiler-furnace fuel. A decisive role in achieving conservation of energy resources (as consumers of energy resources) belongs to enterprises of Minoboronprom [Ministry of the Defense Industry], Minmash [Ministry of Machine Building] and Minavtoprom [Ministry of the Automotive Industry], Minsel'khozmash [Ministry of Machine Building for Animal Husbandry and Fodder Production] and Mintyazhmash [Ministry of Heavy Machine Building].

Significant measures on conservation of energy resources should also be implemented in other sectors of industry. Available scientific and design developments of sector scientific research organizations and also data of the leading experience of enterprises permit significant conservation of energy resources at enterprises of Minlegprom [Ministry of Light Industry] of the USSR, Minpishcheprom [Ministry of the Food Industry] of the USSR, the Ministry of Railways, Minmorflot [Ministry of the Maritime Fleet] and so on.

Much has been done during the postwar years to improve the standard of living of the Soviet people. During the last decade alone, 818.3 million m^2 of housing was introduced and the useful area of hospitals, sanitoria, rest homes, children's and other therapeutic and cultural-educational institutions was increased by 64 percent.

The total consumption of energy resources for municipal-service needs increased more than fourfold in 1980 compared to 1970, which comprised 274.7 million tons of comparison fuel, and will increase. The consumption of energy resources per capita (without consumption for compact vehicles) increased by 17.4 percent during the past decade and comprised 1,033 kg in 1980. An active energy-conserving policy must also be carried out in this area and still available significant reserves should be utilized. Intelligent energy conservation will permit improvement of the housing and service conditions of workers, will create more stable thermal conditions in apartments and public buildings, will improve sanitary and hygienic conditions, will make the environment healthier, will increase the labor productivity of workers and will facilitate their labor. Future measures in this regard--an increase of thermal insulation of apartment and public buildings--will create conditions for expenditures of energy resources for heating by approximately 25-30 percent. Automation of hot water delivery to dwellings as a function of outside air temperature, universal introduction of heat recovery in public and production buildings, as indicated by the experience of one of the machine building plants and the Kosmos Hotel in Moscow, will yield exceptional efficiency, permitting conservation of up to 50-60 percent of thermal resources.

Along with this, the problem of reducing small low-production and extremely inefficient boilers must be decided in the near future. The number of them exceeds more than 280,000, while the heat generated by them reaches 1.5 of 3.2 billion Gcal. At the same time the specific fuel consumption in large boilers comprises 173-175 kg/Gcal and 200-220 kg/Gcal in small boilers; therefore, conversion of customers to central heating will permit conservation of up to 18-20 percent of heat.

There are significant opportunities for energy conservation in agriculture. It is known that our party and government spare no efforts and means to raise the level of this vitally important sector. The level of agricultural electrification was increased significantly. Field operations are now carried out completely by using tractors. Mechanization and automation of production processes have been universally introduced in animal husbandry. This requires enormous energy resources. The consumption of boiler-furnace fuel increased to 40.5 million tons of comparison fuel or almost twofold during the two previous five-year periods. This permitted a significant increase in the output of agricultural products and an increase of labor productivity of agricultural workers.

Based on experiments over many years, it has been concluded in many agricultural regions that deep (moldboard) plowing does not provide an increase of yield everywhere, but on the contrary, as confirmed by the method of the prominent agronomist, honorary academician of VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin] T. S. Mal'tsev, shallow (chisel) plowing with specific soil cultivation provides a more significant increase of yield. Preliminary calculations show that introduction of this progressive method where feasible, along with an increase of yield, leads to annual conservation of 4.5 million tons of diesel fuel.

There are great opportunities for conservation of energy resources in hothouse farming. Along with conversion of old and newly constructed hothouses to heating with secondary heat, which provides significant conservation of energy resources, one must also be concerned about increasing the yield of vegetables produced from each square meter of hothouses, which in turn also permits a reduction of the specific consumption of energy resources. Some data on consumption of energy resources are indicative in this regard: 10 kg of comparison fuel is used to grow 1 kg of cucumbers in USSR hothouses (an average strip), 4 kg of comparison fuel is used in Finland and 3.2 kg is used in the GDR. Agricultural bodies must resolve problems of reducing energy losses--boiler-furnace heat and light petroleum products. There are also other methods of energy conservation and the workers of all sections of agriculture should approach this problem more seriously.

Careful development of problems of energy conservation in each union republic for specific directions and jobs, in housing-municipal and rural facilities, in the republic industry and other branches of local economy showed the possibility of conserving more than 15 million tons of comparison fuel during the decade. Moreover, conservation of boiler-furnace fuel will comprise more than 50 percent and the remaining part will be provided by electric power and thermal energy.

Conservation of light petroleum products merits special attention. The main consumer is transport and mainly motor transport, agriculture and aviation. Thorough analysis of consumption of this fuel indicates extensive unutilized reserves. Some of them are the possibility of converting motor transport, primarily truck transport, to diesel fuel. Fuel conservation in motor freight shipments will reach 30 percent by this method. Taking into account that the national economy is unable to solve this problem within short periods due to the shortage of capacities for diesel engine production, it is desirable to bring the fraction of shipments by diesel vehicles to 60-63 percent in the near future compared to 34 percent last year, which will provide conservation of more than 20 million tons of comparison fuel in consumption of light petroleum products.

Extensive work should be carried out during the coming decade by automotive builders to produce more economical automobile engines and by petrochemical workers to produce corresponding types of petroleum products in order to convert the achieved indicators for specific consumption to that in the developed foreign countries and to provide them with a further decrease by 7-8 percent compared to the last year of the 10th Five-Year Plan. Along with this, production of large-capacity vehicles with diesel engines, equipped with trailers and semitrailers, by our industry will be of no less important significance in fuel conservation.

A higher level of operation of the motor fleet due to improvement in organization of motor shipments and efficient utilization of it, especially in agency motor transport organizations, and also improvement of the condition of highways, as is provided by the decree of the CPSU Central Committee and the USSR Council of Ministers adopted in 1980, will provide the basis to count on achieving a reduction of specific fuel consumption by approximately 8-10 percent on motor shipments during the 11th Five-Year Plan.

The enumerated measures do not exhaust all the possible trends for conservation of petroleum products in the national economy. Specifically, transport operations by tractors in agriculture must be reduced sharply by increasing motor shipments with diesel vehicles, which will reduce the consumption of energy resources by almost a factor of 9. If tractor shipments are maintained only at the 1980 level and the entire increase is provided by shipments in diesel vehicles, this will provide conservation of more than 3 million tons of comparison fuel annually. A number of measures on conservation of light petroleum products will be implemented on passenger transport by buses and compact vehicles and also by rail, sea and aviation transport mainly by improving the designs of engines and also improving the organization of shipments by these types of transport.

Detailed consideration of the aggregate of specific measures on conservation of light petroleum products in transport, in agriculture, construction and other branches shows that the total conservation in the national economy will comprise 20-25 million tons of comparison fuel during the decade.

Along with direct conservation of energy resources, extensive work is being carried out in sectors of the national economy to replace fossil fuels with electric power produced at nuclear and hydroelectric power plants. Conservation of fossil fuel by replacing it will be increased significantly during the coming decade, and a new type of replacement of fossil fuel with heat produced at nuclear heating plants will appear which will yield an annual saving of 8 million tons. Replacement of fossil fuel by geothermal, solarand wind energy will be increased up to the equivalent of 6-8 million tons of comparison fuel.

The total conservation of energy resources (with regard to substitution), according to research data of scientific research and planning organizations, may comprise 360-400 million tons of comparison fuel during the next decade. Considerably fewer capital investments are required to implement the necessary measures on fuel and energy conservation than for production and transport of an equivalent volume of energy resources. According to preliminary estimates, complex implementation of an energy-conserving policy will permit conservation of more than 20 billion rubles annually in the national economy.

Along with the measures indicated above on fuel conservation, there are significant opportunities to obtain additional energy resources by reducing heat losses during production, processing and transport. The greatest reduction of losses can be achieved in the petroleum industry. Last year 47 billion m^3 of casing-head gas was extracted, but 33.5 billion m^3 was utilized, i.e., the losses were equal to 13.5 billion m^3. Possible extraction of casing-head gas will increase to 50-53 billion m^3 in the future. The utilization factor should reach 90 percent by the planned measures for collection and use of casing-head gas and the additional gas production will comprise more than 11 billion m^3 annually.

There are opportunities to increase extraction of petroleum from beds. According to available data, the average coefficient of petroleum extraction now comprises approximately 43 percent. The remaining resources remain unutilized in the beds and they reach 75-80 percent in a number of fields. Developed measures to improve the technology of petroleum production permit an increase of bed output by using new methods (thermal, chemical, gas pumping and others) and thus producing up to 40-50 million tons of additional petroleum resources compared to 2.5-3 million tons in 1980. There is a basis to anticipate that up to 80-100 million tons of petroleum will be produced in the future by increasing the extracted reserves by the indicated methods.

Fuel losses during production and transport of natural gas and coal are high. Natural gas resources can be increased by reducing losses to 0.5 percent instead of the existing 1 percent, which is equivalent to approximately 5 million tons of comparison fuel. Moreover, the gas yield coefficient of beds can be gradually increased to 0.9 compared to 0.85 at present by using low-pressure gas in some regions at the point of production and also by utilizing measures to improve gas-production technology, which may increase gas reserves to 10-15 billion m^3 during the decade and to 40-50 billion in the future.

An increase of coal reserves can be achieved by reducing losses during rail shipments. Losses of coal due to wind and scattering,due to malfunction of rail cars and also to unsatisfactory storage now reach 10-15 million tons. The planned measures to balance and pack the surface layer of coal in rail cars and to apply a protective film to it and also development of new bases for repair of rail cars will permit conservation of up to 7-8 million tons. The mine methane produced during coal production should also be regarded as an energy resource.

Measures to bring in additional oil, coal and gas resources into economic use by reducing losses and increasing the yield of oil and gas beds will permit an increase of commercial energy resources by approximately 150 million tons during the coming decade. Thus, the total fuel and energy conservation (including substitution of fossil fuels) and an increase of commercial energy resources may comprise approximately 500-550 million tons of comparison fuel, while the utilization factor of the fuel produced will increase by 7-8 percent during the decade. This is an important step forward in solution of the problem of efficient utilization of energy resources and of increasing the efficiency of social production.

Implementation of measures on energy conservation requires production of new types of economical equipment. Solution of this problem is being assigned primarily to enterprises of Minenergomash [Ministry of Energy Machine Building] (new economical power boilers, utility boilers and so on), Minkhimmash (heat exchangers, heaters and compressor pumps), Mintyazhmash, Minavtoprom, Minsel'khozmash, Minelektrotekhprom [Ministry of the Electrotechnical Industry] and other ministries. The matter will solve not only the quantity of machines produced but primarily their quality and also the deadlines for manufacture of them. The main measures related to solution of this problem have been worked out rather thoroughly. USSR Gosplan, USSR Gossnab, ministries, agencies and union republics should provide the required capital investments and resources in their plans for these purposes.

Along with introduction of the advances of scientific and technical progress and implementation of practical measures on energy conservation, scientific research and planning-design work related to further development of equipment and technology in this field must be raised to a higher level during the coming decade for a significant increase of the utilization of factor of fuel and energy resources. The most important and primary problems should include measures on energy conservation in electric power and heat engineering. The fact is that more than 50 percent of all the country's energy resources goes for these purposes and an increase of the fuel utilization factor in electric power and heat production plays a decisive role.

The traditionally developed methods of electric power production even at supercritical steam parameters will make it possible to achieve fuel efficiency only up to 38 percent. It is not yet possible to significantly reduce fuel consumption on heat production. It is extremely important in this regard to accelerate research work to implement new progressive discoveries of our scientists--the so-called magnetohydrodynamic method of fossil fuel conversion from chemical to electric form, which will sharply increase the thermal economy of electric power production. The (net) efficiency of large thermoelectric power plants with open-cycle MHD generators will comprise 50 percent during the first stages of introduction and will subsequently be raised to 55-60 percent instead of the 38 percent, as already noted, typical for the best thermoelectric power plants with traditional methods of energy conversion.

The first step in implementation of the given program is introduction of a unit with capacity of 500 MW at the Ryazanskaya GRES in 1985. It is subsequently planned to use MHD generators as superstructures to ordinary energy blocks both at existing and at newly constructed electric power plants operating on any types of fuel. Important significance must be given in the future to development within the shortest deadlines and putting into operation steam-gas plants which increase fuel efficiency by 6-7 percent.

An important measure in energy conservation during thermal energy production must be accomplished in the field of utilizing low-potential thermal energy using steam compressor or thermoelectric heat pumps. The use of heat pumps will provide a reduction of fossil fuel consumption to 100-120 kg of comparison fuel per 1 Gcal of produced heat instead of 170-180 kg consumed by traditional heating sources. The developed pilot prototypes of steam-compressor and thermoelectric heat pumps in operation have completely justified the calculated indicators.

The scientific research organizations of Minchermet (Ministry of Ferrous Metallurgy) of the USSR, Minkhimprom, Minneftekhimprom of the USSR and other ministries are conducting important work to introduce economical processes directed toward a sharp reduction of energy consumption in energy-consuming processes. The task of GKNT, USSR Gosplan, the USSR Academy of Sciences, the ministries, agencies and union republics is to maintain accelerated implementation of this research. As indicated by preliminary calculations, widespread introduction of them along with other measures would permit an increase of fossil fuel efficiency by 15-20 percent in the long term. This would be an important achievement and would determine to a significant degree the rates of increasing the efficiency of all social production.

Such an important economic and social measure as conservation and efficient use of energy resources should concern every Soviet man to a specific degree. The duty of our economic and social organizations is to bring this problem to the consciousness of the broad masses of the people, regardless of whether we are talking about development of a new economical production process, new equipment or energy consumption in production or in everyday life. A decisive struggle should be announced toward an unthrifty attitude to consumption of energy resources.

COPYRIGHT: Izdatel'stvo "Ekonomika", "Planovoye khozyaystvo", 1981

6521
CSO: 1822/22

UKRAINIAN COAL MINISTER DISCUSSES FUTURE OF DONETSK BASIN

Kiev RABOCHAYA GAZETA in Russian 1 Feb 80 p 1

[Interview with UkSSR Minister of the Coal Industry, Nikolay Konstantinovich Grin'ko by correspondent B. Gertsenov of RATAU [Ukrainian Radio and Telegraph Agency]: "Tomorrow for the Donetsk Basin"]

> [Text] The most serious attention is focused in the 11th Five-Year Plan on the fuel and energy complex. In addition to increasing the extraction of oil and gas, the CPSU Central Committee draft stipulates further development of the coal industry. The RATAU correspondent interviews the UkSSR Minister of the Coal Industry, N. K. Grin'ko on the future of the Donbass and the entire branch.

[Question] Not long ago certain specialists negated the expediency of developing the Donetsk basin, referring to the complicated conditions of underground coal extraction and the rise in its net cost. What can you say on this subject Nikolay Konstantinovich?

[Answer] The Donbass is actually experiencing the fate of all the old coal basins in the world. The mines are becoming deeper and deeper. As a result, the mining pressure, and temperature of the surrounding rock rise. Nevertheless, the developing complications do not provide the grounds for scepticism. The Donbass is a veteran of the coal industry and will maintain for a long time its position as the leader, and the main supplier of the solid fuel needs of the European sector of the Soviet Union. I recall that the ferrous metallurgy in the southern sector of our country, the chemical industry, thermal power plants operate on Donetsk coal. Finally, Donetsk coal is the fuel for a population of many millions. Thus, as they say, let the all-union stokehole live and live.

[Question] How does its future look in practice?

[Answer] The answer to this question is given distinctly in the draft of the CPSU Central Committee "Basic Directions for Economic and Social Development of the USSR for 1981-1985 and for the Period to 1990." Aiming at the leading development of the fuel and energy complexes in the east of the country, this document simultaneously plans an increase in the coal extraction in the Ukrainian SSR. Here, as is known, almost nine-tenths of the coal is in the old Donbass. Paths for reaching the goal are defined.

I will quote some figures. It is planned in the five-year plan that has begun to put into operation 14 highly mechanized, high-output mines. The geography of the start-up construction sites is fairly broad. The mine "Dolzhanskaya-Kapital'naya" in the Voroshilovgradskaya Oblast that is known as the "mine of the future" will be put into operation. Based on the latest equipment and progressive technology, it is designed to extract 3 million tons of coal per year with high labor productivity. New enterprises in the Donetskaya and Dnepropetrovskaya Oblasts will begin to yield fuel. The development of facilities for coal enrichment is envisaged. In calculation for the future, it is planned in the current five-year plant to sink new shafts with rated output of 21 million tons of coal per year.

The mine builders have unfortunately not yet coped with the set tasks. It is known that they did not fulfill the plan of the 10th Five-Year Plan, while the old mine fund continues to be left, often at advanced rates. The experience of the high-speed construction of the largest mine in the Donbass, "Zhdanovskaya-Kapital'naya" indicates the great potentialities in increasing outputs. Comrade L. I. Brezhnev warmly congratulated the participants of the construction for their labor success. Dissemination of valuable experience is the urgent concern of every collective.

[Question] Besides the construction of new mines, as stressed in the draft of the CPSU Central Committee, the targets for further development of the Donbass and the entire coal industry of the republic should be the reconstruction and technical re-equipping of the active enterprises.

[Answer] One should especially stress that such large and complex tasks for renewal of the sector's mine fund have still not been solved. whereas, say, in the 10th Five-Year Plan 34 shafts were made at the active enterprises, in the new five-year plan, it is planned to sink 89. In order to replenish the abandoned facilities, it is necessary to introduce 285 galleries. The construction of main ventilators, cooling and degasification units is sharply increasing.

Our mines are concentrating a lot of attention on mechanizing the production processes. The comprehensively mechanized longwalls yield 62.8% of all the coal from the gently sloping and in the inclined strata. In the new five-year plan, this indicator should rise mainly because of the complex mechanization of thin and steeply descending strata, and strata with complex mining and geological conditions. The created complexes that eliminate manual labor in mining these strata, are successfully passing industrial tests.

The large-scale process of mechanization also affects the preparatory work. It is planned to increase the volume of stripping and preparatory mining shafts almost 1.5-fold. Series manufacture of tunneling combines that have justified themselves is rising. Production of new tunneling units that are capable of overcoming stronger rocks than now is being set up.

In the 11th Five-Year Plan, not only will the main, but also the auxiliary processes be mechanized and automated. The target program has been developed and is being realized. It is designed to liberate 12,000 people from manual labor, and facilitate the work for 35,000.

[Question] This program apparently will touch the intramine transportation? As the statistics indicate, almost one-eighth of all the branch workers are engaged here, and many of them are working manually.

[Answer] The question of transportation arteries is really one of the most acute. In this five-year plan major work will be done to update the underground main arteries, to eliminate the multiple stages and increase their throughput. The conveyers, the so-called sectional trains that guarantee continual loading and unloading of the rolling stock, package-container supply of materials and equipment that excludes numerous reloadings of the cargo on the route from the surface to the face will be used even more extensively.

The experience of the mine that is conducting radical improvement of the underground facility without large capital investments deserves all possible support. The planning critical analysis shows that the implemented modernization not only will increase the throughput of the transportation routes, but will also permit a 20-25% decrease in labor intensity to maintain them.

"Concern for the miner and his welfare has penetrated all the sections of the plan for branch development,"N. K. Grink'ko stated in conclusion. "The expenditures to implement the complex plan for improving working conditions and sanitation measures at the enterprises of the ministry that comprised 450 million rubles in the past five-year plan, will be increased in the current plan 1.5-fold. In addition, 1.5-fold more apartments, children's institutions, schools, 23 hospitals, and 34 dispensaries will be build for the Ukrainian miners, almost triple the number in the past five-year plan."

9035
CSO: 1822/114

UKRAINIAN COAL MINISTER OUTLINES PROGRESS ON COAL WORKERS' REQUESTS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 8 Feb 81 p 2

[Article by N. Grin'ko, Ukrainian SSR minister of the Coal Industry: "Miner's Instructions: Lag Overcome"]

> [Text] This was the title of material published on 9 July 1980 on the "Mailbox" of our newspaper regarding mine No 5 "Velikomsotovskaya" in Chervonograd. At a meeting with the leading party, soviet, trade union and management workers that discussed questions of the miners that had entered the mailbox of SOTSIALISTICHESKAYA INDUSTRIYA, there were dozens of miners present from other coal enterprises of Chervonograd. A critical, business-like discussion took place on how to improve the work of the mines and increase the efficiency of the miners' competition, and what is necessary for further mechanization of stoping and tunneling operations, and for cultural-general servicing of the workers' city.
>
> The editorial staff turned to the UkSSR Minister of the Coal Industry N. Grin'ko and the First Secretary of the Chervonograd gorkom of the Ukrainian Communist Party V. Marchenko for a discussion on what has been done about the questions and suggestions of the miners since the meeting.

The board of the UkSSR Ministry of the Coal Industry has examined the question "on measures for eliminating the shortcomings advanced at the meeting of the leaders of the UkSSR Ministry of the Coal Industry with the miners of the association "Ukrzapadugol'" that was organized by the newspaper SOTSTIALISTICHESKAYA INDUSTRIYA" and has made the appropriate decisions.

From the results of the meeting and the materials published in the newspaper, the association and administrations of the UkSSR Ministry of the Coal Industry have planned and are realizing measures to improve the running of the basin. The association miners have been given additional allocations of: a mechanized complex, two tunneling and six stoping combines, three scraper and belt conveyers, and spare parts totalling 300,000 rubles. The association mines have taken measures to replenish the deficient line of stoping faces. At the end of last year, an additional 12 active longwalls were introduced and a number of organizational problems were solved.

All of this reduced the number of mines that did not fulfill the plan. It helped the association as a whole to fulfill the plan of coal extraction for the fourth quarter of 1980.

As of 15 January, the association had extracted 7,000 tons of coal above the plan.

New equipment is being created for the complex program of mechanizing the working of thin beds which has been initiated. For example, series production of the "KM-88" complex has been developed. Few of them enter the republic mines however. This year, with a demand for 30, only 14 complexes have been allocated.

The meeting in Chervonograd raised the question of further mechanization of tunneling operations and reduction of manual labor. Measures have been taken to increase the output of series tunneling combines and create new ones. At the same time, the volume of deliveries of these combines, for example, "4PP-2" is extremely limited: this year it is envisaged that 44 combines will be delivered, while 65-70 are needed. In our opinion, work has dragged on the creation of the "Soyuz-19" tunneling complex. It is designed to make large-section shafts with mechanization of the auxiliary operations.

Our specialists and scientists have developed a complex program to reduce manual labor for auxiliary operations. This program is already being implemented. It provides for an expansion in the nomenclature of low mechanization equipment and increase in the volume of its output to 20 million rubles per year. The Ministry of the Coal Ministry is taking all measures that depend on it so that these important miner's instructions will be fulfilled as rapidly as possible.

The ministry has also examined questions of capital construction that were discussed at the Chervonograd meeting. In the 11th Five-Year Plan, residential buildings with total area of 230,000 square meters will be built for the miners of the association "Ukrzapadugol'"; 2 schools for 2,744 students for the Novovolynsk group of mines and the "Novovolynskaya" mine; 3 preschool institutions for 1,280 places for the group of mines of Novovolynsk, mine No 10 "Velikomostovskaya" and central enrichment plant of Sosnovka; a surgical-traumatological facility for the Novovolynsk group of mines for 175 beds; a pioneer camp for 320 places and dispensary for 265 places for "Chervonogradksaya" mine No 3. As for construction of the House of Pioneers and the music school that one of the miners asked about, the directive agencies have adopted a decree on their erection in Chervonograd. They will be erected in 1983 and 1984 respectively.

Measures are also being taken to perfect the system of wages for miners working in longwalls with a high load.

The mailbox of SOTSIALISTICHESKAYA INDUSTRIYA also held questions related to environmental protection. By agreement with the Ukrainina SSR Ministry of the Coal Industry, the association "Ukrzapadugol'" has issued an assignment to the institutes "UkrNIIproyekt," "L'vovvodkhoz" to formulate the technical and economic substantiate for measures to eliminate the consequences of robbing of populated areas, forest and agricultural lands of the L'vov-Volynsk coal basin and issuing of a draft this year. After the USSR Ministry of the Coal Industry has approved the indicated technical and economic substantiations, a complex program will be formulated for environmental protection work. Priority work to restore worn-out lands have been included in the draft plan for economic and social development of the branch for 1981-1985.

9035
CSO: 1822/115

FUELS

UKRAINIAN COAL MINISTRY PROMISES NEW EQUIPMENT

Kiev RABOCHAYA GAZETA in Russian 3 Feb 81 p 2

[Article by V. A. Voronin, first deputy minister of the Ukrainian SSR coal industry: "New Equipment of the Thin Beds"]

> [Text] First Deputy Minister of the Ukrainian SSR coal industry V. A. Voronin responds to the article of deputy head of the mine administration "Kholodnaya Balka," M. I. Rudenok "At the Test Stand and in the Longwall" that was published during the discussion of the draft on 7 December 1980.

In his article, M. I. Rudenok correctly raised the question of the need to make new equipment to mechanize the stoping faces on the thin and ultrathin beds.

The USSR Ministry of the Coal Industry has currently approved the target complex program. It stipulates the completion of work to make the equipment complexes KM-103 and KD-80 to excavate coal from beds 0.7-1.2 meters thick with unstable lateral rock; the combines K-103 and 1-BKT with external power system to excavate coal from gently sloping beds 0.6-0.9 meters thick; drilling-worm unit (BShU) for coal excavation without people on gently sloping beds 0.6-0.85 meters thick; the equipment complex with frontal excavating machine and timbering "Sputnik" (AFS) for beds 0.6-0.9 meters thick; and the US-3 scraper-grader-ram unit with increased power to work beds 0.4-0.8 meters thick.

Measures have also been formulated to develop series production of hydraulic supports with external and closed power systems of double extension for beds 0.45-1.0 meter thick, and metal surfaces for them.

The majority of the listed equipment is currently being tested, and according to the approved program will begin to be sent to the mines in 1983-1984. The ministry has set up constant monitoring of the development, testing and start-up of series production of the indicated equipment.

Until the new equipment is put out, the manufacture of combines for thin beds MK-67 with SP-48M conveyer, "Donbass-1g," the updated combine "Kirovets" and the UST-2M grader units will continue.

I would especially like to discuss M. I. Rudenok's suggestion for broader use of pneumatic cylinder chocks as timbering in the longwalls on beds of gently sloping incline. The ministry has commissioned the "DonUGI" institute to study this question. Their experimental verification has begun at a number of mines, including the "Kholodnaya Balka" mine. The results of this work will be used to define the areas of application of the pneumatic cylinder chocks on gently sloping beds.

9035
CSO: 1822/113

FUELS

ESSR ACADEMY OF SCIENCES MEETING DISCUSSES FUEL AND ENERGY FUTURE

Tallinn MOLODAYA ESTONIYA in Russian 20 Jan 81 p 2

[Article by G. Golub, special correspondent: "A Problem That Concerns Everyone"]

[Text] This is how Karl Karlovich Rebane, president of the Estonian SSR Academy of Sciences opened the meeting. However, the meeting as a whole did not discuss successes, but those problems that still have to be resolved by the scientists and the production engineers.

The vice-president of the ESSR Academy of Sciences, USSR state prize laureate, Academician Il'mar Paulovich Epik gave a report treating the scientific problems of the Estonian fuel and energy complex. Its main theme was strictly the use of fuel shales since they cover a large part of the republic's fuel balance. Their main volume is burned in the dust form in power plant steam generator furnaces. After thermal processing, one-fifth produces shale gas and oil, as well as chemical products.

There is the query: why is so little liquid and gaseous fuel obtained from the shales? They can replace mazut, natural gas and coal. The reason lies in the very nature of shale. After its processing, ash remains that, as a minimum, must be harmless for the environment, and as a maximum, useful for the national economy. These conditions inhibit the industrial method of producing gas and oil from shales.

At the same time, the pulverized combustion of shale produces energy plus ash which is successfully used both for soil liming and for production of unique construction materials. Narva now has the republic's largest kombinat of construction materials operating on the basis of shale ash. A new television tower has been built in Tallinn and a high-altitude smokestack of the "Iru" TETs based on shale-ash Portland cement. The demand for ash as a fertilizer is constantly rising not only in Estonia, but even far beyond its borders.

But fuel shales are the only reserves of organic fuel in the country's northwest. Therefore, according to the draft of the Main Directions, the power engineering of this region will primarily develop through atomic power plants. They will bear the base load of electricity consumption, while the variable portion will be borne by the GES, water storage and thermal power plants. It is wise to switch the plants operating on shale to semipeak loads. This requires new maneuverable power units, new, powerful steam generators, etc.

This is only in the field of electrical and energy use of shales. They also provide valuable raw material for the chemical industry. How can they be made compatible? Some believe that shale combustion is barbaric, others prove that this is a more economical solution. It is better to burn the shales than oil. Some insist on using shale resin and gas as fuel for the power plants. Others see this as merely a replacement of solid fuel for liquid or gaseous, which does not solve the problem of conserving either mazut or shale.

In a word, the meeting in the hall of the Estonian GRES turned into a scientific discussion. The scientists of various specialties and different profiles had not gathered here in vain. The problems of power engineering are presently viewed as complex problems and everyone is interested in their wise resolution. No one was surprised therefore, when the director of the ESSR Academy of Sciences Botanical Garden, scientific secretary of the council on the republic complex program for the use, restoration and protection of natural resources, Yu. Martin spoke of the stringent requirements for protection of the air and water basin in the shale region. Academician E. Lippmaa, director of the Institute of Chemical and Biological Physics was interested in the ins and outs of shale ash chemical composition. V. Mitor, deputy director of the scientific production association of the I. Polzunov Central Scientific Research and Planning-Design Boiler and Turbine Institute, and professor of the Tallinn Polytechnical Institute A. Ots made a detailed analysis of the problem of burning shales in steam generators.

It is known that the truth is born from arguments. The scientists gathered together so that after weighing the pros and cons, they could plan a common strategy for developing the republic's power engineering to the end of the century, make a complex evaluation of all the factors, and select the best means of conserving fuel and energy resources.

It was no accident that the meeting took place at the Estonian GRES imeni 50th Anniversary of the USSR. This is precisely where the miracle of converting plain-looking fuel rock into electricity that is customary for our century occurs. Enormous turbogenerators stand in the giant housing at the ninth mark, that is at 9 meter height on a measuring rod. In the semicircular hall with the inscription "Main Control Panel," the heart of the plant is beating. From here the current travels on conductors to all ends of the republic, to Latvia, and the Leningrad Oblast.

Merging into the common ring of the energy system in the country's northwest, it lights thousands of lamps in the houses, turns on the refrigerators, machines and construction cranes, and helps to milk the cows. In other words, it serves the people. For this we thank those we keep a 24-hour watch at the power plants, those who designed them and built them, and those who are thinking about the further paths for developing power engineering.

9035
CSO: 1822/115

FUELS

LESSONS TO BE LEARNED FROM HISTORY, CURRENT PROBLEMS OF TATNEFT' ASSOCIATION

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROISVODSTVA in Russian No 1, 1981 pp 140-148

[Article by R. T. Bulgakov, candidate of technical sciences, head of Glavtyumenneftegaz*, Tyumen', and A. K. Mukhametzyanov, general director of the association "Tatneft'," Al'met'yevsk: "The Oil and Gas Extracting Region after Its Zenith: Problems and Outlook of 'Tatneft''"]

[Text] The production association "Tatneft'" was set up in 1950 to operate the oil fields located in the southeast section of the republic. Oil extraction in Tatariya increased at rapid rates. In 1952, about 3 million tons of oil per year were extracted here. By 1957, Tatariya had taken first place in the USSR, having overtaken the leading oil regions of the country in extraction level.

Today "Tatneft'" is a major and complicated economic complex that includes up to 60 enterprises, production units and organizations, including oil and gas extracting administrations, administrations of drilling operations and exploratory drilling, specialized repair and transportation subdivisions, a large computer center, a large scientific research and planning institute, etc. The association has a staff of 60,000 workers, engineers, clerical employees and scientists. The celebrated collective has achieved important production successes that have been marked by broad recognition. In 1966, "Tatneft'" was awarded the Order of Lenin for model fulfillment of assignments to increase oil extraction, and for attained successes in perfecting methods of working oil fields and organizing drilling operations.

The association attained the highest technical and economic indicators in the entire preceding history of development of the oil industry in the Ninth Five-Year Plan. In these years, the total oil extraction was 513.7 million tons. This is 7.5 million tons more than the control assignments of the five-year plan. In 1971-1975, 21.3 billion m^3 of casing-head gas were used, about 8.2 million m of rock was drilled, and 2.6 million rubles of profit were obtained. Major measures were realized to perfect the system of developing and operating the oil fields. Over 5800 oil and injection wells were put into operation. The operating regimes of over 7700 wells were optimized. About an additional 63 million tons of oil were extracted in this period because of geological and technical measures. A large volume of work was done to automate production and control. By now, 43 complexly automated shops for extraction of oil and the first phase of an ACS

---

* General director of the "Tatneft'" association until 1979.

[automated control system] in the association and in six oil and gas extracting administrations have been put into operation. Industrial methods of construction using block-complex automated production units have become widespread.

The party and government gave high evaluations to the production advances of the association in the 10th Five-Year Plan. In past years, the "Tatneft'" enterprises have been awarded the challenge Red Banners of the CPSU Central Committee, USSR Council of Ministers, AUCCTU and Komsomol Central Committee 6 times for the results of the all-union socialist competition, and numerous times, the challenge Red Banners of the Ministry of the Oil Industry and the trade union central committee. In the 4 years of the 10 Five-Year Plan alone, the association collective extracted 492,000 tons of oil above the state plan.

Thus, in all the years of its existence, "Tatneft'" successfully coped with the tasks set for it.

At the same time, the need for a rapid increase in extraction and its prolonged maintenance on a high level meant that for a long time the association did not solve problems that were important for the production process and that had a long-term nature. Analysis of the developed situation shows that the negative effect of these omissions in the past is today influencing a number of important parameters that characterize oil extraction in Tatariya. If decisive action is not taken now, they will have an even more destructive effect on the nature of development of the oil and gas extracting region in the subsequent years.

A significant number of the problems facing "Tatneft'" are determined by the nature of the oil extracting sector. Oil production is distinguished by the fact that its development ascends on a straight line for only part of its path. Finally the zenith occurs. The level of extraction is stabilized, then it begins to drop. The drop is accompanied by a multiple increase in the labor expenditures for each ton of oil extracted. Moreover, the structure of the labor expenditures changes significantly. In the initial period of development of the oil industry in Tatariya (1950's), fields were mainly introduced with gusher method of extraction. This was quite justified since it was guaranteed by high formation pressure. The main equipment used here was pipelines with shut-off fittings. The main technological task was to maintain that regime of oil recovery that corresponds the most to the peculiarities of the field reflected in its operating plan. A comparatively low-skill work force was suitable to service the gusher wells.

At the subsequent stages, the need to intensify extraction and the deteriorating conditions of working required broad scale introduction of a mechanized method of extraction, not only on the old, but on the newly introduced areas. The extraction rate in 1979 as compared to 1966 more than doubled, while oil extraction by the mechanized method increased from 27.7% to 96.9%. The wells were equipped with electrocentrifugal or plunger pumps for forced removal of the liquid. The pumps were considerably less reliable to operate. They were more labor intensive to repair. Moreover, they required considerably more qualified service personnel.

Today's stage of development of the Tatariya oil region is mainly characterized by the fact that the percentage of reserves that are favorable for extraction and that guaranteed high levels of extraction in the past, have significantly declined. The water content of the fields has significantly risen: 80% of the active well fund operates with water. Small fields have begun to be worked. Their oil has increased viscosity and aggressiveness. In 1979-1980 20 new fields were put into operation. Over 284,000 m^3 of water are injected into the bed per day. Further development is required in order to perfect the flooding system, optimization of the operating regimes of the mechanized well fund, reduction in the well construction cycle, increase in quality of the delivered oil, perfection of the equipment, technology and organization of maintenance and repair of the wells, production equipment, automation of production and control. A special place is given to fulfillment of the program to improve the use of oil reserves by increasing the oil output of the beds.

A drop in extraction level is thus accompanied not by a decrease, but a considerable increase in the labor intensity of the work. The planning agencies are often guided by logic that is applicable not to extracting, but to refining sectors. This creates additional problems that aggravate the difficulties of the stage being experienced in the development of oil extraction. A decrease in the operating life at later stages of working the field in the final analysis results in considerable economic losses since it can cause an uncontrollable drop in extraction. The negative effect from this is practically impossible to compensate for in fairly short periods. This situation is complicated even more by the fact that Tatariya, that for a long time remained the leading oil region in the country,has now given up this place to the considerably more promising West Siberian oil province.

The traditional approach to planning the region's development and its supply with resources led to a number of negative consequences. At the current stage of working the main oil fields of Tatariya, further intensification of oil extraction by increasing the drop in pressure and using a flooding system causes a nonproportional growth in expenditures of resources. Moreover, at many productive multiple-bed fields it becomes necessary to change the working principles by regulating the yields from the beds, subdividing the facilities, and creating independent systems of working. For the upper intermittent beds, aleurolites and water-oil zones at the highly viscous oil fields, the use of traditional working methods is inefficient and it is irrational to work them if there are no new methods for increasing the oil output.

The new methods are not yet backed by sufficient equipment. There is no special pumping and production equipment for extraction and transportation of highly viscous and hydrogen sulfide-containing oil. The use of equipment in the standard design is not very effective or economical.

The normal maintenance of the growing well fund is only possible if there is a sharp increase in 1980 in the number of preventive (from 20,000 to 31,500 per year) and major repairs (to 5,000). The output of the repair brigades should thus be increased to 1050 watches with a simultaneous double increase in their supply of equipment. The actual amount of technical equipment and the current rates of equipment influx do not even allow the already created facilities to be maintained in the present volume, since they do not cover their amortization. As a result, the "Tatneft'" association in the 11th Five-Year Plan can be in a situtation where wells waiting for maintenance with daily average output of 4100-4500 T are idle, and wells with daily average output of 2000-2300 T are waiting for major repair. The resulting underextraction of oil will be expressed in millions of tons.

The energy supply of the extraction facilities plays an important role in guaranteeing extraction of oil by the mechanized method. At the end of the 10th Five-Year

Plan, the association's need for repair of electric motors was only 80% satisifed. The replacement of worn-out electrical equipment each year is only 30% guaranteed. The shortage of electric motors by 1980 in "Tatneft'" was estimated at 6,000-7,000.

A complicated situation has developed in the supply of transportation and special euipment. A considerable number of trucks and tractors at hand have been completely amortized and should be written off for physical wear. Fifty-four percent of the trucks of increased cross-country capacity on the GAZ-69 and UAZ-469 chassis have become obsolete. The lack of these trucks for the foremen of oil extraction who service 90-100 wells each results in a weakening of control over well operation, and a rise in their idle time and underextraction of oil. One can also name unsolved problems associated with insufficient material and technical supply of the production processes, low quality and unreliability of the supplied equipment, shortage of capital investments, etc. Moreover, the production and technical difficulties that the association confronts are considerably aggravated by complex personnel problems.

In addition, the social factors of production development to a certain measure emerge to the forefront. The accent is shifted to them more often when managerial decisions are made. At the 25th CPSU Congress, A. N. Kosygin noted that the "role of social factors in the development of production and in increasing its efficiency will considerably rise in the new five-year plan. This trend is especially urgent for the "Tatneft'" association since it is superimposed on the features of that stage of evolution that the Tatariya oil industry is undergoing, and on the nature of the social situation in the region (development in close proximity of new industries that are more attractive in their conditions, and new, more well-organized cities).

If one analyzes the experience of managing the oil enterprises of Tatariya during the entire evolution of the association, then the idea grows that in different times, various factors were advanced to the forefront of importance, although they naturally always affected the quality of the adopted decisions. At the first stages of formation of oil extraction in the then new region, the organizational-technological factors acquired the main importance. In the first place it was necessary to set up supply, transportation, train the personnel, form the production collectives, and work out the applicable technology. At the stage of extensive development of oil extraction, the main problems bore a technical nature. To a considerable degree they were reduced to transferring the attained skill to a larger number of facilities. The problems that are now especially alarming are acquiring more of an economic and social-organizational nature.

Today we have to focus a lot of attention on the use of new methods for modifying the bed and additional drilling of the well network to cover the small, including the lens fields. All of this requires a solution to the question of the economic efficiency of production and perfection of the price-formation mechanism. The modern field has become significantly more complicated, therefore the adjustment of organizational interactions between the subdivisions and the creation of precisely functioning interrelated production complexes acquire especial importance. If one takes into consideration the nature of the dominant motivation of the modern workers, then it becomes obvious that in this matter it is not longer possible to get away with simply developing formalized mechanisms. The importance of flexible organizational structures is rising. They take into consideration the elements of informal organization based on initiative and independence of the workers and to a fuller measure utilize the human factor in production.

In this respect a lot can be done and is being done in the "Tatneft'" association. In particular, one of the branch's first efficent sociological services was set up. It is aimed at developing plans for social development that serve as the long-term strategy of social development of the production collectives. At the same time, there are social-organizational problems that we have only been able to find and formulate, however are not in a position to solve ourselves. Often we are paralyzed in our actions by the instructions and regulations from the higher agencies. This does not permit us to formulate and introduce at our enterprises the most efficient organizational projects for the "Tatneft'"conditions. This results in an undermining of engineering and managerial initiative. We are forced to build our organizational interactions on models compiled for everyone, despite the fact that we know better versions for ourselves.

A considerable number of personnel problems are governed by a shortage of resources allocated to the association. Three-fifths of the association workers receive wages below the average monthly wages for the country. Only 13% receive 200 rubles and more per month, that is that salary that we consider stimulates their attachment. We cannot fully utilize the system of material stimulation to create stable worker collectives for the sections with the heaviest work. The size of bonus to the workers in the brigades of major and underground repair of wells from the wages fund is limited to 40%, despite the fact that their work is standardized by technically substantiated performance standards. The size of the bonuses for workers in other sectors of the national economy in similar situations is increased or is not restricted at all.

Analysis of the association workers' need for housing shows that with the planned volumes of introducing living area in the current five-year plan, the shortage not only will not be diminished, but will increase by 3.5% per year. A considerable number of workers need children's preschool institutions. These needs cannot be satisfied in the near future.

One-third of the workers in the "Tatneft'" association are engaged in low-skill and unskilled labor. Their number is being reduced at extremely low rates (2-4% in the five-year plan). This is because the appropriate equipment is allocated in insufficient quantities (for example, 2 units of "AzINmash" per year for the association).

"Tatneft'" is experiencing an acute need for young, more educated and promising workers, however, these workers are not kept at the association enterprises. The turnover coefficient among the young workers equals 2, that is, the percentage of young people among those dismissed from the enterprise is two times greater than their percentage among the workers. In many subdivisions, half of the workers have worked less than 3 years, while in the next group (with 3-5 year length of service) there are only 13% of the workers. Considerably less than one-third of the novices have worked more than 3 years. This means that only a small percentage of the workers acquire specialization and are able to adapt to the production collective, and that the composition of the oil worker teams is reproduced in too narrow scales. One should consider moreover that the number of workers who are close to retirement age is fairly considerable and in certain occupations reaches

30%. Consequently, if the proper measures are not taken now, in the early 1980's, a number of especially scarce oil professions will be deprived of the minimum necessary number of workers with a sufficient level of professional training.

Thus, in the example of "Tatneft'" we see the consequences of operation that is mainly oriented on today and which generates numerous problems for tomorrow. Ignoring these problems, as we have attempted to show in certain facts and figures, can have a serious effect on the future of oil extraction.

It appears that the lessons of "Tatneft'" are useful for other oil and gas extracting regions.

COPYRIGHT: Izdatel'stvo "Nauka", "Ekonomika i organizatsiya promyshlennogo proizvodstva", 1981

9035
CSO: 1822/118

POWER ENGINEERING DEVELOPMENTS IN ESTONIA

Estonia's Future Power Base

Tallinn SOVETSKAYA ESTONIYA in Russian 4 Feb 81 p 2

[Article by A. Favorskaya: "Power Engineering in Estonia: What Will It Be Like?"]

> [Text] "Perfect the coordination of activity of the scientific institutions, and deepen the link between basic and applied research and production..."
> (from the draft of the CPSU Central Committee for the 26th Party Congress).

Our country is presently basically reorganizing the structure of its fuel and energy balance. The ever rising petroleum and petroleum product shortage forces us to switch to more extensive use of natural gas and coal, to develop nuclear power at leading rates, and to develop local types of fuel more actively.

From the position of the entire national economic complex, how must the power engineering of Estonia develop, based mainly on fuel shales?

A coordination scientific and practical meeting that took place in January in Narva was convened to answer this question. The meeting was held by the council on coordination of scientific activity of the ESSR Academy of Sciences with the participation of the departments of physical and mathematical,and technical sciences, and the departments of chemical, geological and biological sciences of the ESSR Academy of Sciences, the program council on the complex use of fuel shales under the presidium of the ESSR Academy of Sciences, the main production aadministration of energy and electrification of the ESSR, the Tallinn Polytechnical Institute, and the Institute of Thermophysics and Electrophysics of the ESSR Academy of Sciences. In the hall where the meeting took place one could see scientists and designers, planners and operators, party and soviet workers of the republic. This obviously confirmed the urgency and multifaceted aspect of the discussed problem. It is very important that the main directions for the development of power engineering in Estonia that were formed from the speeches of different specialists, was based on the detailed research conducted in recent years, and on an analysis of both the outlook and the current state of the fuel and energy service in the republic.

I would like to present a view of these main directions here.

Shales today comprise 63% of our republic's fuel balance. Serious discussions have developed many times on how to use them the most optimally in the future: as a direct fuel for power plants or primarily as a chemical raw material. A method has already been mastered for a number of years for the industrial processing of shale on a unit with solid heat carrier [UTT] (the main UTT-3000 is being set up in the Estonian GRES). It was advanced by its authors as a promising variant of the combined energy and technological use of shale. But in the final analysis, only a specific comparison, analysis and precise calculation will be convincing. At this meeting, they spoke explicitly in favor of another practice that has long existed in the republic. This is the direct burning of fine-grain shale at power plants to generate electricity, and parallel processing of the lump shale into valuable chemical raw material, shale resin. This is essentially the same energy technological principle, stated the Vice-President of the ESSR Academy of Sciences I. Elik who spoke on the scientific problems of the fuel and energy complex of Estonia. "...It is a principle which is a natural and tested method of using the Baltic shales. It does not require the accomodation of power engineering and technological units in one enterprise," added Corresponding Member of the ESSR Academy of Sciences A. Aarna who headed the republic scientific and technical program for the complex use of fuel shales.

Here are some specifics about the advantages of today's energy technology.

From the report of I. Epik:

"Electricity that is generated by the Baltic and Estonian shale GRES is now one of least expensive forms of energy in the unified energy system of the northwest. The level of annual output of electricity is higher than the planned. The ash that is formed in shale combustion does not contain products of incomplete combustion that are harmful for the environment. The ash is widely used in the construction industry and agriculture. The outcome of ash liming of acid soils in western RSFSR is about 10 rubles per ton of ash. It is 23 rubles per ton when it is used at regional plants to produce high-grade cement. The total effect of using ash from both GRES's in the national economy can be 105 million rubles per year."

"One can state," summed up Academician Epik, "that during pulverized combustion of Baltic shales, a high degree of complexity in the use of the original raw material has been attained and verified on a large scale."

We will omit the presented list of comparative "minuses" of the UTT method. They include a serious, unresolved problem of ash neutralization.

On the other hand, we recall the recent awarding of the State Prize to I. Epik, the head of the Estonglavenergo [Estonian Main Energy Administration] E. Aman, the director of the Estonian GRES K. Senchugov, the deputy director of the scientific production association of the I. Polzunov Central Scientific Research and Planning-Design Boiler and Turbine Institute V. Mitor, and several famous power engineers and shale experts. The prize was"for developing low-waste and highly economical technology for using shale and for the economic expediency, proved in practice, of using this low-calorie fuel for the country's needs."

The specialists thus believe that with the extant technology of extraction (with the formation of fine-grained and lump shale), the version of "direct combustion plus processing in shale gas generators " is the most promising and economical.

How much fuel will the republic require in the future? How much will shale satisfy these needs?

It is expected that in the future roughly 1.5-fold more fuel will be used than now. Shale will be more advantageously used only for the needs of large power units and shale chemistry. Additional natural gas will be inevitably required for complete coverage of the republic's fuel needs in the 12th Five-Year Plan. Its percentage is rising sharply. The speakers at the meeting demonstrated this by the figures in their hands. Their conclusion was that this problem could only be solved by building an additional gas pipeline to Tallinn. This gas pipeline and the corresponding change in the fuel and energy balance are decisive questions for the republic's further industrial development.

The Institute of Economics of the ESSR Academy of Sciences and the Institute of Thermophysics and Electrophysics of the ESSR Academy of Sciences presented calculations that clarify and substantiate in details the republic's needs for fuel and energy resources, as well as the possibilities for covering them. These calculations can be used to judge the place of each fuel in tomorrow's balance. But it is no less important that the reports of Doctor of Technical Sciences L. Vayk and Doctor of Economic Sciences I. Kaganovich also took into account the ecological aspect.

We will speak of this a little later. It is first necessary to look at Estonia as part of the entire northwest energy system of the country.

From the decision of the coordination meeting.

"In the structure of the unified energy system of northwestern USSR, the base load is gradually shifting to nuclear power plants. This means that the power plants on restricted fuel will have to operate in a maneuverable regime. Taking into account the practice of creating maneuverable units on solid fuels, we should start making new maneuverable power units on direct combustion of Baltic shales. The accumulated experience of pulverized combustion of shale affords these possibilities."

In the future, the nuclear power plants of the northwest will take on themselves the main load in energy generation. The shale power plants can be used in the system to regulate the output, to cover the semipeak load. After 1990, the Baltic and Estonian GRES's will be gradually amortized. Taking into consideration that the currently employed quantity of shale in the transition to the semipeak regime will almost double their output, in the opinion of the specialists, a variant should be formulated to reconstruct the power plants with a switch to the maneuverable regime and bringing the output to 5000-6000 MW. It is very important here that we do not have to start "from zero." We can rely on the already available technical developments made by our specialists. The head of the department of thermal power engineering of the Tallinn Polytechnical Institute A. Ots, and the deputy director of the scientific production association of the I. Polzunov Central Scientific Research and Planning-Design Boiler and Turbine Institute V. Mitor, after formulating in their report the requirements for the new maneuverable steam generators for the power unit, have essentially already presented its sketches and demonstrated the technical possibilities of developing it rapidly. The designing of the new steam generator is a real matter in this five-year plan, while industry will be able to master it inthe next.

"The reconstruction of our shale power plants to switch them to a semipeak load and also create new steam generators for the 500 megawatt power unit will be one of the main aspects of the republic program for the complex use of fuel shales," A. Aarna reported to the meeting.

What is the future outlook for the chemical use of shale? The production of high quality shale resin in powerful gas generators remains paramount. As compared to all other methods, this method yields the greatest output of phenols (a valuable raw material for production of many scarce products, epoxy and other glue resins, tanning agents, resin modifiers). The generator resin enjoys unlimited demand and its quality is higher than the quality of UTT resin. The coordination meeting therefore assigned as one of the tasks, the accelerated study of the operating experience of the 1000-ton gas generator at the production association "Slantskhim."

It was noted here that since the output of lump shale for the gas generators in extraction is limited, there should be continued development of such methods of producing liquid fuel as processing fine-grained shale in the fluidized bed according to the method of the Scientific Research Institute of Shales, and also on the UTT.

An invariable condition however, must be the unconditional safety of these industrial technologies for the environment. This was spoken of in particular, by Academicians of the ESSR Academy of Sciences I. Epik and E. Lippmaa. The questions for the UTT, for example, have unfortunately not yet been resolved.

The meeting also weighed the coordination between the branch and regional planning in this aspect. The extant power engineering units must be operated, and new ones built without impairing the human habitat, although this would require serious reconstruction or even closing of certain facilities.

In the current five-year plan, shale extraction will be developed primarily by increasing the labor productivity and reducing losses in extraction that are now very great. One of the methods for significantly reducing the losses is to introduce the so-called two-layer combine extraction of shale with complete collapse of the roof. However, this inevitably disfigures the landscape and elicits unforeseen consequences for agricultural crops and forests. Decrease in losses in extraction is thus a major and complex problem. In solving it, it is necessary to take into consideration technical, economic and ecological factors. This task was formulated by the meeting for this five-year plan.

Remember the number that I mentioned in the beginning: fuel consumption in the republic should rise roughly 1.5-fold. We will need the same amount even if we use fuel with all possible economy and efficiency.

The Institute of Thermophysics and Electrophysics computed what this economy and efficiency must be formed from , from what specific measures. It was computed that by 1990 about 1.4 million tons of comparison fuel can really be saved in a year.

On this subject, the meeting noted reasonably that the energy conserving policy is equivalent to the actual extraction of fuel. The chief specialist of the State Committee of the USSR Council of Ministers on Science and Technology, D. Vol'fberg who made this note, recalled that this was precisely how the energy saving policy was first evaluated in the draft of the Basic Directions. D. Vol'fberg noted that it was very good that the republic scientists are already conducting and propagandizing this work. It must undoubtedly be deepened and brought to specific results. Here the cooperation between the republic Academy of Sciences and industry is very important.

Increase in the efficient use of fuel and energy resources, and their efficient and economical consumption were named by the meeting as one of the most important tasks facing the ESSR power engineers. "It is necessary," it is written in its decision, "for every major enterprise to develop and begin to implement a program for conservation of fuel, electricity and heat. It is also necessary to have a scientifically substantiated all-republic program to increase the energy efficiency of the Estonian national economy."

Energy Consultation Provided

Tallinn SOVETSKAYA ESTONIYA in Russian 4 Feb 81 p 2

[Article: "Consultation Point"]

[Text] A consultation point for energy problems has been set up for organizations and enterprises in the Institute of Thermophysics and Electrophysics of the ESSR Academy of Sciences.

Consultations can be obtained on the following questions:

Organization of power facilities in the branch and enterprises.

Formulation of measures for conservation of fuel and energy resources in the branch and at the enterprises.

Development of a plan to control the power facilities of the enterprise.

Development of the optimal sequence for introducing restrictions on electrical power at branch and enteprise facilities.

Formulation and refinement of energy consumption standards.

Efficiency promotion in the plans of electricity and heat supply of the enterprise.

Substantiation of the economic efficiency of updating and perfecting the branch and enterprise power facilities.

Here one can consult on other aspects of development, control and operation of power facilities. Highly qualified specialists give the consultations.

Interested organizations and enterprises can write to: 200031, Tallinn, Paldiskoye shosse, 1, ITEF AN ESSR, sector of general power engineering, tel. 444-003.

9035
CSO: 1822/115

CONDITION OF AZERBAIJAN OFFSHORE AND LAND OIL DRILLING DISCUSSED

Moscow PRAVDA in Russian 10 Feb 81 p 3

[Article by M. Bayramov, head of eighth shop of "Leninneft'," Kh. Bayramov, head of construction-assembly administration of the trust "Azmorneftestroy, M. Gambarov, drilling foreman, hero of Socialist Labor, E. Akopov, head of drilling unit, G. Guseynov, foreman of well repair of "Artemneft'," and S. Ibragimov, director of 22nd CPSU Congress Production Association: "The Earth Is Generous"]

> [Text] It is not easy to extract oil from the depths of Azerbaijan. Highly organized, persistent work is needed before the assignment stipulated in the Basic Directions, "to expand the use of new methods for modifying the oil beds and to increase by this means the extraction of oil from the depths" will be fulfilled.

Offshore fields today yield over two-thirds of the oil and 90% of the gas extracted in the republic. It is comforting that as compared to the Ninth Five-Year Plan, the gas workers increased the volume of gas extraction by 1.7-fold. However, the Caspian oil workers could not fulfill their duty formed in early 1980. We are happy about the decision to build a plant for us to produce deep-sea stationary substructures. This will permit more active storming of the Caspian storehouses.

We have the responsibility to maintain the active well fund in order and to use modern methods to intensify oil and gas extraction. The experience acquired at Neftyanyye Kamni is of special value. Here the 10th Five-Year Plans were systematically overfulfilled for all indicators. The coefficient of well utilization in the shop headed by G. Shikhiyev was 0.979. Thanks to the smooth operation of the repair brigade of N. Partayev, 840 wells were put into operation instead of the planned 822.

This success was primarily the result of the competent use of the resources, in particular, the skilful application of geological and technical measures: shooting of wells, washing of sandy plugs, use of gas valves, treatment of the near-face zone. This and much more allows more products to be taken from the wells and preserves the cleanliness of the environment.

The experience of the brigade of S. Guseynov from the offshore administration of exploratory drilling "Bulla" is important. All the wells drilled there in recent years have been records in tunneling rates. Farther into the Caspian, as a rule, the wells become more productive.

Oil extraction on dry land is more complicated. Here the depths have been worked for about 120 years. But as the experience of the leading collectives demonstrates, where the new equipment is skilfully used and modern technology is employed, a stable influx of fuel is achieved, and in some places the level of extraction is even elevated. These collectives actively employ secondary and tertiary methods to increase the oil output of the beds, both thermal and physicochemical. Preparation has begun for using mining and quarry methods of extracting oil. It is planned to extract about 530,000 tons of oil on dry land by the new methods in the 11th Five-Year Plan.

The collective of the eighth shop "Leninneft'" has not abandoned a single old well. At the field they are skilfully using complex mechanization and automation of production processes. Geological and technical measures last year yielded about an additional 16,000 tons of "black gold."

It is worth learning from the workers of "Ordzhonikidzeneft'" where many of the beds have a complex geological structure meaning that the traditional methods are not effective. Now the task is being set of producing no less than an additional 600,000 tons of product in the new five-year plan.

Unfortunately, the scales of work are restricted by the shortage of chemical reagents. We therefore support the suggestion of the people of Ordzhonikidze that the draft of the Basic Directions stipulate an increase in the output of special solvents and other materials for the needs of the oil industry. Chemization of oil extraction is one of the main reserves for increasing the output of the beds.

The 30th Congress of the Azerbaijan Communist Party indicated that the oil and gas extracting industry was and remains one of the leading sectors of the republic's economy. The task is not only to stablize the recovery of oil, but also to increase it by the broader introduction of advanced methods of intensifying extraction and developing new fields in the sea and on land.

Azerbaijan is worthy of the title "oil academy of the country." This obliges us to make a major new step in scientific and technical progress. Everything is available for this: an excellent base, excellent personnel, and remarkable traditions.

9035
CSO: 1822/115

FUTURE PLANS FOR AZERBAIJAN OIL, GAS FIELD EQUIPMENT INDUSTRY OUTLINED

Baku BAKINSKIY RABOCHIY in Russian 6 Feb 81 p 2

[Article by Yu. Manzon, deputy director for scientific work of All-Union Scientific Research and Planning Technological Institute of Oil Machine Construction: "Equipment for Oil and Gas Fields"]

[Text] Of all the branches of industry, machine construction is given the greatest place in the draft Main Directions for Development of the USSR in the 11th Five-Year Plan and to 1990. This is natural because machine construction to a large extent determines the technical progress of the national economy and expanded reproduction. The draft stipulates the leading development of machine construction, increase in the technical level and quality of its products. The all-union industrial association "Soyuzneftemash" that is active in Baku has been called upon to guarantee the creation and growth in output of highly productive equipment for the country's oil and gas fields.

At the 30th Congress of the Azerbaijan Communist Party Congress that took place at the end of January, a major victory was marked by the workers of oil machine construction. They were the first in the republic, in November 1979 already, to fulfill the assignments of the 10th Five-Year Plan for growth rates in the volume of production, labor productivity and equipment output. "Soyuzneftemash" was awarded the Order of Lenin. Comrade L. I. Brezhnev gave a high evaluation ot the work of the machine builders in his greeting.

In the 10th Five-Year Plan, "Soyuzneftemash" increased the output of products by 70%. In the 11th Five-Year Plan its increase alone should surpass the total production reached in 1975. As compared to 1980, the supplies of gusher equipment to the fields will almost double, the casing heads will more than double, the rocker machines and deep pumps will increase 1.5-fold, etc. The percentage of products with the sign of quality will increase from 3% in 1975 and 32% in 1980, to 42% in 1985. The technical and economic indicators will significantly improve. For example, it is planned to obtain almost the entire increase in products without raising the number of personnel, thanks to the increased labor productivity.

The Azerbaijan Scientific Research Institute of Oil Machine Construction, the special design office of oil machine construction, the All-Union Scientific Research and Planning-Technological Institute of Oil Machine Construction and the Baku branch "Giprokhimmash" have set up a stockpile of documents on renewal of the nomenclature of field equipment and technical re-equipping of the plant facilities. Scientists, designers, production engineers and planners must work more energetically on solving the tasks of the five- and ten-year plans.

What kind of equipment will the oil and gas workers receive? The nomenclature of units and lifts for studying, major repair on and acid treatment of the wells will be changed almost completely. New types of gusher equipment will be developed, casing heads, deep pumps, gas-lift equipment, and operational block and tackle systems. Especial attention is focused on producing equipment to operate under conditions of West Siberia, Kazakhstan and the sea shelf. All of these products of the machine builders are designed for reliable operation in regions of difficult access with low and high temperatures, and in aggressive media. Increased powers, reduced metal consumption, higher level of mechanization and automation, and improved working conditions for service personnel are envisaged.

Plant production of course will be organized on the basis of progressive production processes, modern metal-working equipment, and mechanized fittings, and if necessary, industrial robots as well.

Even this concise list demonstrates the need to expand the enterprises of "Soyuzneftemash." Construction is being completed of a blowout preventer shop, and shops of gusher fittings and deep-pump hoses at the Lieutenant Shmidt Plant. At "Bakinskiy rabochiy" a block of shops will be put into operation to manufacture rocker machines, and at the Kishlinsk machine construction plant, a reducer shop. It has been decided to make additional facilities: at the Kirov plant, to produce locks and connecting terminals for drilling pipes, at the Dzerzhinskiy Plant, to organize ouptut of gas lift equipment and bushingless deep pumps, at the Sardarov Plant, to fabricate field mechanisms and agricultural machines. New shops will arise at the Petrov, Montin and Kasimov Plants.

Taking into consideration the importance of increasing the production of cultural-general goods and economic use commodities, the Sardarov, Kirov and Kishlinsk Plants plan to build specialized shops. The same sections are planned for other enterprises.

In addition to the plan for economic development of "Soyuzneftemash," a social one is also envisaged of course. We will cite only one example. The resources allocated by the Ministry of Chemical and Oil Machine Construction in 1981-1985 will provide all workers who need improved living conditions and by 1 January of this year were on the books.

I would like to cover several questions that are exceptionally important for the association.

The volumes of construction and installation work for "Soyuzneftemash" in the 11th Five-Year Plan must be three times greater than those actually fulfilled in the 10th. This requires that the Ministry of Industrial Construction of the Azerbaijan SSR plan the corresponding volume of contract work. This is the chief question in the development of the association's production base. It has not been resolved yet. It seems to us that the republic Gosplan simultaneously and in parallel must plan both the growth of product ouptut for the national economic sectors, and the development of the production facilities necessary for this.

Since the Ministry of Industrial Construction refuses to work in the active shops of our enterprises, it is suggested that the principal volume of this work be done by the Baku construction and installation administration "Soyuzneftemash." Consequently, the facilities of the Baku construction and installation administration for capital construction require doubling already in 1981-1983. The Ministry of Chemical and Oil Machine Construction and the USSR Gosplan must allocate the construction and transportation equipment for this.

In order to technically re-equip the plants, and provide the oil and gas fields with a sufficient quantity of modern equipment of high quality, it is necessary to have material resources, set-forming items, technological and lifting-transporting equipment. Only the union ministry and Gosplan can supply them to the association.

In 1980 the Baku enterprises of "Soyuzneftemash" brought in over 20,000 tons of cast pig iron items and about 30,000 tons of drop forgings and forged pieces from other economic regions in the country. The need for them will increase each year, restraining the rates of development of the principal industry. In the 11th Five-Year Plan, therefore, preparatory work should start (selection of the site, compilation of technical and planning-estimate documents, etc.) so that in Azerbaijan in the future a storage complex can be built that is capable of satisfying the rising needs of machine construction.

Finally, "Soyuzneftemash" is a major participant in the housing construction in Baku where a system of single customer exists. In our opinion, it is expedient to allocate to the association definite houses that are built in the areas of its enterprises. This will secure workers for the oil field machine construction, help the builders at the facilities and promote the improved use of the housing fund. There is no doubt that after attentively examining the suggestions of "Soyuzneftemash," the Baku gorispolkom will agree with them and approve them for the benefit of the matter.

The workers of the association are discussing with great interest the draft of the CPSU Central Commitee for the 26th Party Congress, "Main Directions of Economic and Social Development of the USSR for 1981-1985 and for the Period to 1990" and the materials of the 30th Congress of the Azerbaijan Communist Party.

The tasks of our sector are broad and diverse. It seems that in the 10th section of the draft, instead of the words: "Reconstruct the Baku plants of oil field equipment," it would be more accurate to write: "Implement technical re-equipping and expansion of the Baku plants of oil field machine construction."

9035
CSO: 1822/113

FUELS

KAMSK COAL BASIN DEVELOPMENT AS SOLUTION TO COAL TRANSPORTATION PROBLEMS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 18 Feb 81 p 2

[Article by M. Pogrebnyak, general director of the Udmurtsk production geological association, USSR State Prize laureate: "If Coal Is Not Transported from Afar"]

[Text] Fuel is successfully supplied to the developing industry and agriculture of the Urals and Volga region with great strain. At the same time we are literally walking on coal. Geologists discovered enormous deposits of it 40 years ago in searching for oil and gas fields. Now two wells have again accidentally cut through coal beds. The name of the new fuel base has even been confirmed, the Kamsk coal basin.

It covers a large territory between the Urals and the Volga. According to the data of scientists, in Udmurtia and Tataria alone, the reserves of solid fuel comprise tens of billions of tons mainly at a depth from 860 to 1,200 meters. The coal-bearing deposits, according to preliminary data, are from 1 to 3 meters thick. In individual cases, their thickness reaches 20-30 meters. The Kamsk power engineering coal is of medium ash content, high calorific value and low moisture content. Why are these resources not used in the national economy?

We now receive coal from Kuzbass, almost 3,000 kilometers. If there is a snow drift on the road, the facilities of many recipients immediately experience a fuel shortage. The thorough bottleneck on the trunk line (there are enough of them in our memory) is removed with major loss that is customarily written off as "objective"difficulties.

The industrial development of the Kamsk coal basin, in our opinion, is a problem of great national economic importance. Europe's largest TETs is being built near Perm'. It "consumes" over 10 million tons of coal per year. This is the same amount required by other power plants of the Permskaya and Kirovskaya Oblasts, the Tatarskaya and Udmurtskaya ASSR. According to the calculations of the Perm' Polytechnical Institute, all of these demands will be satisfied merely by putting into operation the first four mines at the Kazakovskiy field. The long-term output of the entire basin can be 60-80 million tons of coal per year.

The first stage of replacing imported fuel with local will already yield an annual economic effect of 190 million rubles. At the same time, expenditures were considered for geology, planning, industrial and civil construction. The outlays will be warranted in 6-7 years, that is in the standard periods. It is most important that it will be possible to relieve the strained Transsiberian trunk line.

The advantages of the new fuel base are evident. The efforts of the party and soviet organs, scientists and skilled workers have repeatedly raised the question to the union Ministry of Geology and the USSR Ministry of the Coal Industry regarding its additional exploration and development. There are no replies. At the same time there is no obvious desire to rapidly resolve the problem.

Our trust has been commissioned to compile a program of exploration. We have planned to develop them on four of the most promising sites, and drill about 80 exploratory wells. Even in 1981 the collective is targeted for 10,000-15,000 meters of drilling. Alas, we are restricted to studying only the Kazakovskiy field and only with the help of 12-14 wells. We have not been assigned additional equipment or materials. How can one "storm" the depths on bare enthusiasm?

Thus, from the first steps the threat has developed that the geological work will be prolonged for a long time. The practical use of the Kamsk coal will be postponed for an indefinite time and the resources that we are expending will not produced a rapid yield. Industry as before will be on hunger rations.

I believe that the Main Directions should include such an important national economic task as the exploration of the Kamsk coal basin in order to begin mine construction here in the future.

9035
CSO: 1822/114

FUELS

PITFALLS, PROGRESS IN TURKMEN PETROCHEMICAL INDUSTRY

Ashkhabad TURKMENSKAYA ISKRA in Russian 11 Mar 81 p 2

[Excerpts from article by G. Izhnin and O. Pal'vanov, instructors from the department of the oil and chemical industry of the Turkmen Communist Party Central Committee: "What Experience Teaches"]

[Text] The 10th Five-Year Plan was years of large-scale capital construction for Soviet Turkmenistan. A sum of 4.3 billion rubles was spent on developing the republic's national economy. The main production funds rose by 19%. Dozens of complexes and new industrial enterprises and shops have been put into operation.

The chemical and gas sectors developed at the highest rates. Over 248 million rubles were assimilated at the chemical facilities alone. New facilities for 191.3 million rubles were started up. As compared to the Ninth Five-Year Plan, the volumes of construction and installation work doubled.

In past years, shops to produce 450,000 tons of sulfuric acid, 853,000 tons of complex mineral fertilizers and 136,000 tons of extraction phosphoric acid have been put into operation at the Chardzhou V. I. Lenin Chemical Plant. The republic can now obtain an additional 245,000 tons of sulfur from the Gaurdak 50th Anniversary of the TuSSR Sulfur Plant, and from the production association "Karabogazsul'fat" an additional 50,000 tons of sodium sulfate. The assignment for introducing new facilities to produce mineral fertilizers in the 10th Five-Year Plan was completely fulfilled.

Unfortunately, frustrating delays and complications are now occurring at the stage of developing new facilities. At the Gaurdak50th Anniversary of the TuSSR Sulfur Plant, due to an insufficient study of the mining and geological conditions, and discrepancies of a technological and technical nature, omissions by the builders, the volumes of underground sulfur extraction have declined by 33% as compared to, 1976. At the same time, the extremely unstable operation of the units results in an increased consumption of heat. It is much higher than the standard.

The production of ammophos at the Chardzhou Chemical Plant is being set up at an impermissibly slow rate. It is attaining the planned limits only now, after several months.

The facilities for production of sodium sulfate and bischofite are utilized by a little more than 70% at the production association "Karabogazsul'fat." It is irritating that the interruptions are not the fault of this leading collective.

The fact is that the USSR Ministry of the Chemical Industry does not give the association active support in expanding the marketing of natural sodium sulfate brand "B" and bischofite.

The main production funds at the iodine-bromine plants of Turkmenia are renewed almost annually. However, because of difficulties in extracting and transporting the raw material, the industrial units of the Cheleken and Nebit-Dag enterprises do not operate in complete force. Strengthening and renewal of the raw material base must become the primary concern of the leaders of the plants, local party and soviet organs.

In the 11th Five-Year Plan, the republic is faced with important tasks for the further development of the chemical and petrochemical industries. The volume of products will increase 1.7-fold. When the Turkmen Plant of Nitrogen Fertilizers (TZAU) is put into operation, the supply of mineral fertilizers to the national economy will rise 2.8-fold.

Our iodine-bromine plants are growing. They will increase the output of products by 17-37%. A transition will be made to the plant method of producing sodium sulfate in the association "Karabogazsul'fat." Construction is planned of new shops of bischofite, magnesium sulfate and others. There is the possibility of starting fabrication of complex types of products that are new for the republic at the Nebit-Dag and Cheleken iodine enterprises, and at the Ashkhabad plant of general chemistry of starting production of paint and varnish materials.

The control and organization of the construction conveyer at TZAU need radical improvement. A serious lag has been permitted from the plans and schedules. During the 10th Five-Year Plan, over 15 million rubles were not assimilated here. The omission needs to be compensated for. The construction site should be supplemented with skilled manpower and the financial status of the general contracting construction and installation administration "Khimstroy" should be improved. For these purposes it is finally necessary to examine the accumulation of incomplete precast reinforced concrete in the facility, to strengthen the political education of the people, and increase the responsibility of the leaders for plan fulfillment. It is impossible to think that it is normal for the start-up of new facilities to be interrupted here in the 10th Five-Year Plan to the tune of over 6 million rubles.

The 11th Five-Year Plan requires that all who are involved with the further development of the chemical and petrochemical industries have a different style of working, a high degree of accomplishment and organization. This year it is already necessary to assimilate over 71 million rubles for the construction of facilities in this sector. It remains to start up facilities for coke production in the Krasnovodsk Oil Refinery and achieve a strong stockpile in order to start up facilities at the Chardzhou Oil Refinery and the Turkmen Plant of Nitrogen Fertilizers in 1983.

The fiscal report of the CPSU Central Committee to the 26th Party Congress stresses the need for a radical improvement in capital construction. This means that it is necessary to concentrate efforts on increasing the level of industrialization and mechanization, and broad introduction of the leading experience and new, advanced labor methods. Unfortunately cases are still frequent where precast reinforced concrete comes to the republic construction sites without insert parts, without their metallic coating, and with deviations from the set standards that require additional expenditures. The processes of installing frameworks do not have installation fittings that facilitate the labor of the workers. There are many other shortcomings that restrain the rates of construction work and the timely start-up of the facilities.

9035
CSO: 1822/113

FUELS

TURKMEN OIL EXPLORATION CONTINUES

Ashkhabad TURKMENSKAYA ISKRA in Russian 4 Feb 81 p 2

[Article by B. Nepesov: "Oil Exploration"]

[Text] One of the most important tasks to be solved by the collective of the "TurkmenNIPIneft' [Turkmen Scientific Research and Planning Institute of the Oil Industry] is to provide the association "Turkmenneft'" with promising oil and gas fields. This multifaceted problem covers a broad range of studies on different directions in geology, hydrogeology, geochemistry, stratigraphy, etc. The scientists who are included in the national socialist competition in honor of the upcoming 26th CPSU Congress are trying to fulfill their assigned work with high quality, in the planned periods, and with the least outlays.

A great victory of the institute was the compilation of search projects for black and blue fuel on new structures of Bugdayli, Nogay, Atdzhan, Shakhman and others, as well as an evaluation of the predicted reserves of minerals to a depth of 7,000 meters. This work has been done by the laboratory of exploration planning under the supervision of Candidate of Geological and Mineralogical Sciences O. Torayev.

According to the projects of the institute scientists, new oil and gas fields were discovered in recent years, East Chelken, Kara-Tepe, Ekiz-yak, South Bugdayli and others. This confirms that the territory of Gasan-Kuliyskiy rayon is rich in fuel resources. Geologists and drillers will come here in the near future. New settlements, roads and fields will appear on the republic map.

The scientists are solving new problems that arise from the oil workers' needs. It remains to organize search and exploration for oil and gas in the mountain region of West Turkmenistan, namely in the area of the Kazandzhik, Kizyl-Arvat and Kara-Kala regions. According to the scientists' predictions, deposits of hydrocarbon fuel may be found here. The territory of the Krasnovodskaya Oblast thus remains a principal region of oil extraction in the republic. The main increase in oil reserves is expected right here.

9035
CSO: 1822/116

FUELS

TYUMEN' GEOLOGISTS SEARCH FOR OIL, GAS

Moscow PRAVDA in Russian 13 Feb 81 p 3

[Article by F. Salmanov, head of Glavtyumen'geologii, hero of Socialist Labor, Lenin Prize laureate: "Tyumen' Horizons: Geological Exploration"]

[Text] The first gusher of industrial oil in West Siberia occurred only 20 years ago from a well drilled by the brigade of foreman S. Urusov at the Shaymskiy field. The party has now set the task of bringing the oil extraction here in 1985, including gas condensate, to 385-395 million tons, and gas to 330-370 billion cubic meters. This is more than half of the national extraction!

The arguments of the Tyumen' geological prospectors were of course taken into consideration. In the last five-year plan, the plan for increase in gas reserves was covered 1.5-fold. At the same time, the enterprises were technically re-equipped, new production bases were created and the old were strengthened, and branch control was perfected. The volumes of construction and installation work rose by more than 6-fold. Production areas of 180,000 square meters were put into operation, 15 times more than in the previous 5 years.

However, this is only the beginning of a broad program that remains to be implemented. In this five-year plan we need to drill 10 million meters of wells in order to keep up with the rates of oil and gas extraction. This is the same number of wells that were drilled in all the years of exploration in Tyumen'.

We cannot follow the path of extensive development, otherwise by the end of the five-year plan we will have to increase the collective by 100,000 people. This means additional construction of housing, social, cultural and general facilities, expenditures for transportation, and much more. The only solution is to intensify geological exploration. Thus, in deep drilling the labor productivity needs to be increased by 30-35%. This indicator could be even higher. But a lot here depends on the allied workers that supply the Tyumenskaya Oblast with drilling equipment, tools and materials.

The geologists need serious support of the oil machine construction enterprises. Zapolyarr'ye needs special drilling units of the light-weight block type, with lower energy consumption, heated and mobile. We are now receiving units from the Volgograd plant "Varrikady." They have the same power as the employed drilling machines, but are 116 tons heavier. Consequently, the drilling rigs have become untransportable here where there are no roads.

There should be more extensive use of local fuel sources, natural gas, crude oil and gas condensate. The imported fuel costs the state a lot. It is necessary to increase the output of highly efficient face motors and drills. In our expeditions, for example,a new turbodrill with high indicators has been successfully tested. However, the Kungur enterprise of the all-union association "Turbobur" is small and cannot manufacture even an experimental batch of the face motor. The time has come to set up the manufacture of drill bits, turbodrills, bedtesters and other tools and instruments that are now imported from all ends of the country.

The geologists have serious claims against the metallurgists. The drilling pipes are not of high quality. They often break in the wells.

We consequently think it necessary that the section on ferrous metallurgy in the draft of the Basic Directions should include: "Develop at accelerated rates the production of economical and special types, including high-strength, steel pipes, threaded, of the oil grade, with new types of threaded connections and anti-corrosion coatings..." We suggest that the following be included in the section on nonferrous metallurgy: "Increase the production of pipes of oil grade based on aluminum alloys."

The geologists are travelling further to the north. Today more than half of the oil and gas exploration expeditions operate in the forest-tundra and tundra of the Yamalo-Nenetskiy autonomous okrug. There heavy-freight transportation is needed that is adapted both for strong frosts and for lack of roads. The geologists suggest that manufacture of transportation vehicles and freight platforms on an air pillow be developed.

In addition to the drilling rig, the helicopter has become a symbol of Tyumen'. Time requires the creating of such rotary wings that could lift up to 20-30 tons of freight. This will permit the drilling blocks to be taken to new points in the summer-fall period in three-four trips.

Even with the maximum possible increase in labor productivity, by the end of the five-year plan, the number of people in the geological exploration collectives needs to be doubled. Dozens of settlements will have to be set up in the northern regions.

Under West Siberian conditions, it is very efficient to use the watch-expedition method of developing the distant areas. In the base cities of Tyumen', Omsk and Novosibirsk, residential construction should be accelerated. It is expedient that the USSR Ministry of Industrial Construction be entrusted with this task. It has a developed system of construction industry enterprises. The geologists are also ready to take part of the responsibility. But for an efficient method to develop successfully, it should be strengthened with material and technical resources and construction equipment and materials should be allocated.

Taking into account the experience of the collectives, we can guarantee today that the task of accelerated development of geological study and detection of oil and gas fields on the West Siberian territory that is set by the CPSU Central Committee in the draft for the 26th Party Congress will be fulfilled. We suggest that the draft of the Basic Directions be supplemented with the line: "In West

Siberia by 1990 bring oil extraction, including gas condensate, to 450-500 million tons, and gas to 1 trillion cubic meters."

The Tyumen' geologists have always been optimists. Optimisim plus optimization of the entire geological exploration industry is a reliable guarantee of the forced development of West Siberian resources.

9035
CSO: 1822/116

FUELS

FUEL, ENERGY CONSTRUCTION PLANS IN YEREVAN OUTLINED

Yerevan KOMMUNIST in Russian 6 Mar 81 p 1

/Article by M. Allakhverdyan, first deputy chairman of the Armenian SSR Gosplan: "Great Outlook"/

/Excerpt/ One of the main problems is the further development of the republic's fuel and energy base. It is planned to put the Spandaryanskiy GES into operation. The question of centralized heat supply for Yerevan will be resolved. Main heat networks will be built with total length over 40 km.

It is planned to reconstruct the Kazakh-Yerevan gas pipeline branch on the Dilizhan-Sevan section, as well as to build the Nakhichevan'-Yerevan gas pipeline. In order to improve the fuel supply to the population living in the republic's mountain regions, it is planned to build the Kadzharan-Megri-Agarak, Sisian-Dastakert, and Dzhermuk-Azizbekov-Yekhegnadzor gas pipelines.

9035
CSO: 1822/117

FUELS

URENGOY-MOSCOW PIPELINE NEARS COMPLETION

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 17 Feb 81 p 1

[Article: "To Approach the Finish"]

[Text] The country perhaps has no more important construction site today in the fuel and energy sector than the 2,800-kilometer Urengoy-Ukhta-Gryazovets-Moscow gas pipeline. The construction schedules for the giant gas main have been compressed to the limit. According to the commitments adopted in honor of the 26th Party Congress by the builders of the Ministry of Construction of Petroleum and Gas Industry Enterprises, this energy route should be constructed at least twice as fast as stipulated by the state standards.

Laying of Gas Pipeline from 9 to 15 February

	Assignment per week (in km)	Actual	Remainder of work
Tyumenskaya Oblast	21.8	23.1	12.0
Komi ASSR	54.9	31.3	67.7
Vologodskaya Oblast	56.0	43.0	81.0
Yaroslavskaya Oblast	77.0	61.3	83.0
Vladimirskaya Oblast	10.5	3.5	6.7
Moscow Oblast	25.2	19.9	63.0
Total for construction project	245.4	183.2	313

What is the situation on the route? The schedule for the shock construction project records an ever smaller number of kilometers that remain to be laid before the end of the line operations for the entire trunk line. The summary on the course of work no longer indicates the Arkhangel'skaya oblast where the Glavvvostoktruboprovodstroy has completed its assignment. To the east, in the Tyumenskaya oblast, the last meters of pipe have been laid by the subdivisions of the Glavsibtruboprovodstroy. To the west the production lines of Glavkomigazneftestroy are aimed at the finish. The rates of construction and installation work are increasing in the Vologodskaya, Yaroslavskaya and Moscow Oblasts. More than half of the trunk line is already taking gas.

The last hundred kilometers separate the builders from the planned goal. The column of V. Madenov from the trust "Severtruboprovodstroy" insulated and laid 14 kilometers of gas pipeline in a week. This was double the assignment. The column of I. Bykov from the trust "Priob'truboprovodstroy" in this same period advanced 8.5 kilometers under more difficult conditions. At the construction of the junction under the Dmitrov-Aleksandrov railroad, the brigade of the mine tunnelers from Glavmosinzhstroy [Main Administration for Construction of Engineering Structures in the City of Moscow] of M. Titov in one shift made 6 meters of tunnel under the fill, fulfilling more than two standards.

Yet another report. Yesterday the brigade of the order-bearer A. Arustamov from the association "Soyuzintergazstroy" in the Zagorsk region completed the 17th kilometer of insulation-laying operations. The brigade is ahead of the schedule for the week.

It can be said that the construction project is heading for the finish line. This requires from all the participants in the "worker's relay race," the builders, operators, machine builders, truckers, railroad men and other allied workers, new efforts and labor exertion, and even better interaction. It is so much more irritating that the collectives of Glavtruboprovodstroy [Main Administration for Construction of Oil Pipelines and Pipelines] and Glavneftegazelektrospetsstroy are lagging with the installation of cathode protection for the connecting junctions of the high-voltage transmission lines and other operations.

9035
CSO: 1822/117

FUELS

GREATER STRESS ON COAL AS OIL SUBSTITUTE ADVOCATED

Moscow IZVESTIYA in Russian 4 Feb 81 p 2

[Article by M. Golitsyn, doctor of geological-mineralogical sciences: "Coal as an Oil Substitute"]

[Text] It is known that coal can be used not only as a source of energy, but also as a raw material to produce synthetic liquid fuel, as a substitute for natural oil. Due to the limited reserves of oil and the expediency of using it in chemistry, many countries are conducting intensive development and introduction of methods for producing synthetic fuel from coal and fuel shales. We are also doing this work, but its scale is clearly insufficient.

In the Kansk-Achinsk and Kuznetsk basins alone the reserves of inexpensive coal that is suitable for obtaining liquid fuel by the method of hydrogenation are estimated as many billions of tons. If one takes into account that one can produce one ton of synthetic oil from 2-3 tons of coal, then it becomes clear the importance of coal as a new and important source of liquid hydrocarbons.

The draft of the Basic Directions concentrates only one phrase on this question in section III, and in section IV "Development of Industry" it says nary a word. I suggest that the draft be supplemented. An independent point should be isolated in section III "Development of Science and Acceleration of Technical Progress":

"Accelerate the development and introduction of methods for producing synthetic liquid fuel from coal and fuel shales."

Section IV where the coal industry is discussed, should include this point:

"Accelerate the creation of industrial units to produce synthetic liquid fuel."

In addition, the time has apparently come to seriously discuss the need for involving the Ministry of the Petrochemical Industry in this important state matter. It has considerably greater potentialities than the coal industry.

9035
CSO: 1822/117

DUPLICATION, WASTE IN GEOLOGICAL EXPLORATION DEPLORED

Moscow TRUD in Russian 14 Jan 81 p 2

[Article by A. Karryyev, head of the administration of geology of the Turkmen SSR Council of Ministers: 'What Is in the Dumps"]

[Text] Six departments of three ministries are conducting geological exploration on the territory of the Turkmen SSR: the republic administration of geology, the associations"Turkmenneft'","Turkmengazprom," "Chelekenmorneftegazprom," "Turkmenneftegazprom," and the republic Ministry of Construction Materials Industry. The parallelism and duplication result in large additional outlays.

It seems that all work on exploration and search for oil and gas should be concentrated in the hands of the USSR Ministry of Geology and its subdivisions at the sites.

Another question is that far from all the storehouses found by the geologists are used efficiently. On Lake Kara-Bogaz-Gol, for example, one can obtain not only sodium sulfate and Glauber's salt, but also bromine, boron, potassium and rare earth elements. However this is not done.

Central Asia's largest Gaurdak-Kugitanskaya base of the mining and chemical industry also could yield a considerably greater output. Over 20 billion cubic meters of stripping rock alone have been accumulated here. The giant hills contain rich reserves of gypsum, limestone and anhydride. This is good raw material for producing cement, sulfuric acid and many components that can be used in the medical industry. Only a little is used however. The Gaurdak Sulfur Plant is "sitting" on the raw material for cement, but it brings in this construction material, traversing hundres of kilometers through all of Karakumy. How much money is wasted!

In its time, the state commission for reserves of minerals in the USSR Council of Ministers established that it is economically advantageous to work the minerals in this region. After uniting the efforts of a number of ministries and departments, one could guarantee comprehensive processing. This would be an effective means of fulfilling one of the clauses of the IX section of the Basic Directions draft on the complex development of mineral fields.

9035
CSO: 1822/116

HIGH MARKS GIVEN TO NEW COAL EXCAVATION COMBINE

Kiev RABOCHAYA GAZETA in Russian 14 Jan 81 p 1

[Article by A. Yaroshenko, brigade foreman of miners of stoping face of "Yasinovskaya-Glubokaya" mine of the "Makeyevugol'" association: This Is Equipment!"]

[Text] We have finally received the new equipment for the thin beds. This is the KM-103 complex that consists of converted hydraulic timbering and self-cutting combines. Our brigade has been entrusted with mastering this equipment. We have installed it in a longwall 200 meters long in a bed 0.8 meters thick. There are many of these in the association.

Five months have passed and certain results of the work can be summarized. I will say at once that the KM-103 complex pleased all the miners with its simplicity, reliability and high output. We started with 500 tons of coal per day, and on individual days brought the load on the face to 1200 tons. We did not utilize completely all the potentialities of the new equipment. The combine design with two cutting parts, with two electric motors arranged like mirror images of each other, makes it possible to do without very labor-intensive operations, excavating the recesses. It is sufficient to put the combine in the drift and advance. There is yet another important advantage of the timbering, it advances on the longwall in a not quite empty state. This eliminates sprinkling and roof cave-ins.

It is understandable that it is not especially convenient for people to work in a longwall on a bed 0.8 meters thick. But, by using this complex, we can restrict ourselves to only five miners in the longwall. Twelve people work on a shift. They produce 300-400 tons of coal.

The most important factor is that the KM-103 complex that was developed by the "Giprouglemash" institute and manufactured at the plant, is only an experimental model. We and our colleagues in the thin beds wait for the series production of this equipment. Then the coal from the thin bed longwalls will be brought out not in a rivulet, but in a powerful river. This will be the true response to the program of increased fuel extraction advanced by the party in the 11th Five-Year Plan.

9035
CSO: 1822/113

MORE MINING EQUIPMENT NEEDED

Moscow PRAVDA in Russian 14 Feb 81 p 3

[Article by V. Borodin, brigade foreman of stoping face in mine "Krasnaya gornyachka," hero of Socialist Labor, and N. Dobronosov, repairman of the S. M. Kirov Machine Construction Plant, ero of Socialist Labor: "Robots Help"]

> [Text] Coal is the bread of industry. This formula was and remains in force, although now oil and gas,and nuclear energy are "working" jointly with it. It is quite natural that the draft of the Main Directions attributed great importance to an increase in coal extraction and improvement in its quality.

Our Kopeysk is a miner's city. Today it is also known as a major supplier of mine tunneling equipment. Four-fifths of the powerful tunneling combines and loading units manufactured in the country for underground coal extraction are put out by our machine construction plant. The facilities of the enterprise are limited however and they do not cover the rising demands of the branch. They cannot guarantee the further development and production of new, advanced types of mining equipment.

At the same time, the engineers and designers of the plant, jointly with the scientists, have already developed plans, and certain types of machines that permit resolution of important problems of growth in coal extraction, improvement in productivity and working conditions of the miners, as well as efficient use of natural resources have been made and sent for industrial testing. For example, the mechanized complex that was made for paired shafts, leaving barren rock in the mine, considerably curtails the loss of fuel, increases its quality and excludes rocks from coming to the surface to form dumps. The planned new complex of short-wall equipment promotes an increase in extraction of coking coals when the descending horizontal layers are dug out and the thick steep coal beds are worked. Other advanced equipment is at the planning and testing stage, including robots. When they are used, the constant presence of people in the mine stoping faces is no longer necessary.

The acute demand for accelerated output of highly productive mining machines and units determined the need to build a large new plant of underground tunneling and drilling equipment in Kopeysk. According to the technical and economic substantiations, the new enterprise will be roughly four-fold larger than the currently active plant. It is planned to begin building it in the 11th Five-Year Plan.

The further increase in coal extraction based on efficient equipment depends a lot on the timely start-up of this facility. However the stipulated rates of plant construction, in our view, are not sufficiently correlated to the achievement of the goal set in the draft of the CPSU Central Committee. It is suggested in the 11th Five-Year Plan that less than half of the capital investments be assimilated, that is essentially that construction of only the main facilities be started. Completion of the construction project and complete development of the enterprise capacity go beyond the 1980's. We believe that the fourth section of the draft of the Main Directions, the paragraph: "Increase the production facilities of coal machine construction to completely satisfy the needs of the national economy for highly productive, reliable mining equipment and spare parts for it," should be supplemented with the words "by reconstructing the active and accelerated construction of new enterprises, including the plant of underground tunneling and drilling equipment in Kopeysk."

9035
CSO: 1822/116

FUELS

ROLE OF REPAIR BASE IN OIL AND GAS INDUSTRY STRESSED

Baku VYSHKA in Russian 13 Feb 81 p 2

[Article by A. Rzayev, general director of the association"Azerneftemashremont": "Strengthen the Repair Base"]

[Text] The 30th Azerbaijan Communist Party Congress has set great and important tasks before the republic's oil workers. As stressed in the fiscal report of the republic Communist Party Central Committee to the congress, the oil extracting industry was and remains one of the leading sectors of the republic's economy and its role in the 11th Five-Year Plan is rising even more.

The resolution of the tasks set by the 30th Congress of the republic Communist Party to stabilize and increase oil extraction by broader introduction of progressive methods of intensifying extraction and developing new fields is impossible without a reliable equipment base to prepare new models and for high quality repair of the oil extracting equipment.

The workers of the plant "Krasnyy proletariy," the chief enterprise of the production association "Zerneftemashremont" know this well. It is our contribution that our republic has been awarded the challenge Red Banner of the CPSU Central Committee, USSR Council of Ministers, AUCCTU and Komsomol Central Committee for the 11th year in a row.

We completed the 10th Five-Year Plan with good production indicators. This was successfully achieved mainly as a result of accelerated introduction into production of the achievements of technology and the broad development of socialist competition for efficiency and quality in work. In 1976-1980 we created three mechanized production lines that used highly productive machines, including programmed control, and semi-automatic machines. During the five-year plan alone we installed over 50 units of the latest technological equipment and over 300 devices for technological equipment and dies. We also reconstructed four mechanized assembly and boiler-welding shops.

We consequently successfully introduced into production over 100 progressive technological processes and operations and mastered the production of new items of almost 50 names and type-sizes. In the final year of the 10th Five-Year Plan alone, we mastered the output of six new types of products, for example, blocks of drilling units for the oil workers of the north, oil-collecting units for a set of floating barriers, devices for securing the fixed end of the cable on the unit for well repair "Bakinets-3M," well head oil seal for hollow hoses, and a number of others. In the five-year plan alone, the assortment of plant items was renewed by more than half. I will note that as a result of introducing the leading equipment and technology, the economic effect was almost 300,000 rubles.

As a result of perfecting production, we succeeded in elevating labor productivity a lot. It has risen by more than one-third since the beginning of the five-year plan.

The technical level of the manufactured products increased. Certification of items for the first category of quality was completely finished. The quantity of items that pass after the first presentation is now 85% for us. This is 5% higher than planned in the beginning of the five-year plan. Now over 70 of our workers have a personal stamp. They include communists I. Lomako, V. Feoktistov, M. Fedorov, N. Akimov and many others.

The introduction of scientific organization of labor produced a great result. Since the beginning of the 10th Five-Year Plan we have introduced 145 measures for NOT [scientific organization of labor]. They have yielded an economic effect of 330,000 rubles. The plurality of professions by many workers, for example, turner and polisher, milling machine operator and planer operator, driver and crane truck driver, reduced the number of workers in the enterprise.

However, in order for the results of our work to become even weightier, in the 11th Five-Year Plan the plant collective has to apply great efforts. It has to be admitted that the plan for our plant to deliver products to the Baku office of "Neftemashremont" was not fulfilled. As a result, the oil workers did not receive a large quantity of acutely necessary equipment: over 1,200 derricks for casing columns, 2,500 no-return valves, and 100,000 rubles of spare parts for compressors. The sometimes poor quality of materials and set-forming parts result in the fact that we still have cases of manufacturing products with deviations from the requirements of standards, specifications and drawings.

One of the main problems is that the allied enterprises, including plants "Soyuzneftemash," do not always supply us rapidly with steel and pig iron cast materials and other necessary parts. The matter is also impeded by the lack of modern equipment that we need acutely, horizontal forging machines and thread-cutting machines.

Analysis done by the plant economists shows,however, that the reasons for the nonfulfillment of assignments from a number of viewpoints are hidden in the insufficiently precise planning of work, and poor management of the shop leadership in solving production problems, and the disorder in the smooth output of many types of products.

Work to perfect the economic mechanism has become an important aid in overcoming the these shortcomings. This work is now underway at the plant.

The plant collective is faced with new frontiers in the 11th Five-Year Plan. It remains to increase the volume of equipment manufactured for the oil workers by almost 1.5-fold, to master tens of new types of items on former production areas, and increase the specific weight of products with the sign of quality by 8%. All of this will help to successfully solve the task stipulated by the draft of the CPSU Central Committee for the 26th CPSU Congress, to stabilize oil extraction. However, for the oil extracting industry of the republic to yield an ever greater output each year, it will be necessary in the 11th Five-Year Plan to strengthen its repair base. Our plant is a component part of this base. If one takes into consideration that we also manufacture products for oil workers in other regions of the country, then the need for this strengthening becomes even more evident.

It is therefore very important that the draft of the CPSU Central Committee that speaks of the leading development of machine construction and metal-working, stipulates in the 11th Five-Year Plan the paramount re-equipping of the machine construction enterprises with new metal-working equipment. However, taking into account the paramount importance of oil and gas extraction in strengthening the country's fuel and energy potential, one should apparently add: and the repair plants of the petroleum and gas industry.

9035
CSO: 1822/114

FUELS

NECESSARY INSTRUMENTS LACKING FOR OIL BED MODIFICATION WORK

Baku BAKINSKIY RABOCHIY in Russian 18 Jan 81 p 3

[Article by I. Dzhamalov, candidate of technical sciences, head of laboratory of thermal modification of beds of Azerbaijan Scientific Research and Planning Institute of the Petroleum Industry: "Special Instruments for New Methods"]

[Text] The words familiar to every oil worker can be said to be known by heart: "Expand the use of new methods for modifying the oil beds and by this means increase extraction of oil from the depths." This is the task of the entire oil industry that was advanced by the Central Committee of the party in the draft of the Main Directions of USSR Development in the 11th Five-Year Plan and up to 1990.

Thermal methods, that is heat, belong to the new methods of increasing oil yield. In recent years the country has conducted copious experimental and industrial work on thermal modification that localized its high degree of efficiency and expediency of mass introduction. Progressive technological processes that were fulfilled on the level of inventions and that have justified themselves in practice, have been suggested by the scientists of the Azerbaijan Scientific Research and Planning Institute of the Petroleum Industry.

Unfortunately, science and production feel the need for the most necessary means of studying, controlling and regulating thermal processes directly under field conditions. The implementation of new methods requires new and special instruments. We will explain in examples.

In order to establish the optimal regime for working a deposit, it is necessary to have an instrument at the head of each injection well to measure the quantity of moist steam injected into it. Our appeals to the State Scientific Research Institute of Thermal Instrument Making (Moscow) and the Special Design Office "Neftekhimpribor" (Baku) of the USSR Ministry of Instrument Making, Automation Equipment and Control Systems were not successful. The field workers do not have instruments to determine the temperature and moisture content of steam at the face of the injection wells. The lack of information regarding the three most important indicators of the process prevents an increase in the effectiveness of the steam modification and a rise in the output.

When oil is extracted by intrabed combustion, complex processes occur of heat and mass exchange, thermal oxidizing transformations in the "rock-oil" system, etc. It is extremely important here to know the location of the combustion front and how it advances over the bed, how the temperatures are distributed in it, what is the need for oxygen of compressed air, and what quantity of oil is burned in the depths. It is otherwise impossible to make scientifically substantiated engineering recommendations for an increase in the results of the process.

There is yet another feature of the thermal methods. In Azerbaijan, for example, they are primarily used in the Kirmakinskiy series. It is made of geologically heterogeneous strata. Consequently, the working agents, whether wet steam or compressed air, also advance unequally and nonuniformly over the oil-containing rocks. Without instruments it is impossible to find out the quantity of steam or air that has entered individual intercalations to displace the oil from them. If the process course is not regulated, all or part of the extraction is lost.

Thus, in order to increase the scales of introducing thermal methods it is necessary to have control and measuring, and regulating instruments that are designed to operate in oil, gas, water and steam media at temperatures from 300 to 600° C and pressures from 20 to 100 atmospheres. The traditional and latest principles of operation of instruments that are known to science permit us to undertake without delay the designing and production of control-measuring and regulating equipment that the oil workers need. The problem is quite resolvable, but it has to be taken up.

This is primarily the task of the ministries of the petroleum and gas industry, chemical and petroleum machine construction, instrument making, automation equipment and control systems. It is likely that the experience of other ministries whose enterprises use high temperature processes will be beneficial. Azerbaijan with its branch industrial institutes and design offices, technical VUZ's and instrument making plants possesses great potentialities. It should be stressed that the our academy is actively involved in making scientific instruments. It could successfully head up and coordinate this work in the republic.

The instruments we have spoken of are also needed by science that is formulating new and perfecting the extant thermal methods of intensifying oil output, and by production that is obliged to introduce them more widely and efficiently.

It seems that the phrase from the draft of the Basic Directions that was cited in the beginning of this article, should sound in the final text as follows: "Expand the use of new methods for modifying the oil beds and by this means increase extraction of oil from the depths, after providing the oil extracting industry with special well head and face control-measuring and regulating instruments."

9035
CSO: 1822/114

BRIEFS

DRILLING RIG--Comrade L. I. Brezhnev spoke from the platform of the 26th CPSU Congress about the enormous reserves to be found in increasing the efficiency of the extracting industry, in particular, the oil industry. It is the eve of the start-up of a new self-hoisting drilling rig, "60 Anniversary of Azerbaijan." It is the third of a series of of floating platforms built by the shipbuilders of the Astrakhan shipbuilding production association. It differs from its brothers because its support legs are 10 meters longer. It is designed to drill exploratory-development wells at a great depth, 6,500 m with 70-meter water thickness. The PBU [floating drilling unit] has provided for all conditions for satisfactory work and rest of the oil explorers. [Excerpt] [Baku VYSHKA in Russian 8 Mar 81 p 3] 9035

CSO: 1822 END

END OF
FICHE
DATE FILMED

4 | 17 | 81